TETRA TECH

February 24, 2020

Ms. Cathy Amoroso
National Priorities List Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Subject: **Final Focused Site Inspection Report, Revision 1**
Patterson Street Solvent Plume
EPA Contract No. EP-S4-14-03
EPA Identification No. NCN000404887
Technical Direction Document (TDD) No. TT-05-041

Dear Ms. Amoroso:

The Tetra Tech Superfund Technical Assessment and Response Team (START) is submitting revision 1 of the enclosed final focused site inspection (SI) report regarding the Patterson Street Solvent Plume site in Greensboro, Guilford County, North Carolina. The SI report includes figures (Appendix A); tables (Appendix B); field logbook notes, field sheets, and boring logs (Appendix C); a photographic log of SI activities (Appendix D); a photographic log of the surface water samples (Appendix E), and Tetra Tech's review of field quality control samples (Appendix F). Attachment 1 contains the U.S. Environmental Protection Agency (EPA) Laboratory Services and Applied Sciences Division (LSASD) analytical data packages.

Please call me at (678) 775-3101 if you have any questions or comments regarding this submittal.

Sincerely,

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Cathy Amoroso

FINAL
FOCUSED SITE INSPECTION REPORT

PATTERSON STREET SOLVENT PLUME
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA

U.S. EPA ID NO. NCN000404887

REVISION 1

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
Atlanta, Georgia 30303

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) to conduct a focused site inspection (SI) at the Patterson Street Solvent Plume (PSP) site in Greensboro, Guilford County, North Carolina (EPA Identification Number [No.] NCN000404887). The focused SI was completed under Contract No. EP-S4-14-03, Technical Direction Document (TDD) No. TT-05-041. The SI was conducted with cooperation and assistance from the North Carolina Department of Environmental Quality (NCDEQ).

The primary objectives of an SI are to determine whether a release of hazardous substances to the environment has occurred, and whether the release has the potential to be placed on the National Priorities List (NPL). The NPL identifies releases, or threatened releases, of hazardous substances posing a serious enough risk to public health or the environment to warrant further investigation and possible remediation under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986.

Information gathered during the focused SI is used to generate a preliminary Hazard Ranking System (HRS) score. The HRS score is the primary criterion EPA uses to determine whether a site is eligible for placement on the NPL. Generally, an SI is the first CERCLA investigation at a site where waste and environmental samples are collected and analyzed to support a site evaluation according to the HRS.

Objectives of the focused SI at the PSP site were as follows:

- Obtain and review relevant file material.
- Document current site conditions.
- Collect and analyze samples to establish representative background levels.
- Collect samples to document observed releases to the soil exposure and subsurface intrusion pathway and the air migration pathway.
- Evaluate the target population for the air migration pathway.
- Obtain any other missing HRS data.

The remainder of this focused SI report regarding the PSP site is organized as follows:

- Section 2.0 briefly discusses the site background, including the site location and description. For a complete site background, see the final Preliminary Assessment Report, dated May 9, 2019 (Reference [Ref.1]).
- Section 3.0 describes the following: focused SI field activities during the week of September 9, 2019, and supplemental sampling activities on December 3 and 4, 2019; sample collection, methodology, and procedures; and deviations from the final quality assurance project plan (QAPP), dated June 21, 2019, and final QAPP addendum, dated November 20, 2019 (Refs. 2; 3).

- Section 4.0 discusses analytical support, methodology, validation, data quality, and data qualifiers.
- Section 5.0 identifies source sampling locations and presents analytical results.
- Section 6.0 discusses the soil exposure and subsurface intrusion pathway, including the surface soil, indoor air, crawl space air, and soil gas sampling locations and analytical results.
- Section 7.0 discusses the air migration pathway, including ambient air sampling locations and analytical results, as well as targets associated with this pathway.
- Section 8.0 summarizes and presents conclusions of the focused SI report.
- Section 9.0 lists sources referenced during preparation of this report.
- Figures are in Appendix A. Tables are in Appendix B. Field logbook notes, field sheets, and boring logs are in Appendix C. The SI photographic log is in Appendix D. The surface water photographic log is in Appendix E. Tetra Tech's review of field quality control (QC) samples is in Appendix F. The EPA Region 4 Laboratory Services and Applied Sciences Division (LSASD) analytical data packages are in Attachment 1.

2.0 SITE BACKGROUND

This section briefly discusses the site background, including the site location and description. Previous investigations relevant to the pathways of concern are discussed in Sections 6.0 and 7.0. For a complete site background, including all previous investigations, see the final Preliminary Assessment Report, dated May 9, 2019 (Ref. 1).

The PSP site is defined as a contaminated groundwater plume with no definitive source. The PSP site is located in about 349.1 acres of land surrounding the intersection of Patterson Street and South Holden Road in Greensboro, Guilford County, North Carolina (see Figure 1 in Appendix A); the boundaries of the site are not defined in this SI. Several industrial facilities are within the Patterson Street industrial corridor, including Ashland Chemical, Inc. (Ashland Chemical); Dow Corning Corporation (Dow Corning); Ecoflo, Inc. (Ecoflo); and the North Carolina Department of Transportation Site # 61 (NC DOT), among others (see Figure 2 in Appendix A). The Patterson Street industrial corridor hosts major suppliers of blended bulk chemicals to furniture, textile, and other manufacturing businesses (Ref. 1, p. 2). Releases to the environment of chlorinated volatile organic compounds (CVOC) are known or suspected to have occurred at four NCDEQ Inactive Hazardous Site Branch (IHSB) sites and three Resource Conservation and Recovery Act (RCRA) sites along the Patterson Street industrial corridor (Ref. 1, p. 2). Geographic coordinates at the PSP site, measured at the intersection of Patterson Street and South Holden Road, are latitude 36.057192 degrees north and longitude 79.841981 degrees west (see Figure 1 in Appendix A).

This SI focused on: (1) a residential neighborhood within the PSP site and south of the Patterson Street industrial corridor (henceforth referred to as the "neighborhood study area"), and (2) unnamed tributaries originating within the neighborhood study area that this SI report refers to as the "urban ditch" unnamed tributary and the "bedrock" unnamed tributary. The neighborhood study area is bordered to the north by Immanuel Road, to the east by Belmar Street, to the south by North Hayden Street, and to the west by South Holden Road (see Figure 3 in Appendix A).

The EPA hypothesizes that the contaminated groundwater plume beneath the neighborhood study area is discharging to unnamed tributaries (urban ditch and bedrock) that flow through the neighborhood, and that from these unnamed tributaries volatilization of contaminants into the ambient air occurs. The purpose of the focused SI was to gather analytical data by collecting environmental field samples from groundwater, surface water, surface soil, soil gas, indoor air, crawl space air, and ambient air to evaluate whether groundwater contamination is affecting surface water and ambient air in the neighborhood study area. The focused SI provided additional data to assist EPA with determining whether additional vapor intrusion (VI) investigations would be necessary. Given the large number of potential sources of the groundwater contamination in the Patterson Street industrial corridor, definitive identification of a single or multiple sources of contamination was beyond the scope of the focused SI.

3.0 FOCUSED SITE INSPECTION ACTIVITIES

This section addresses field observations and sampling procedures at the neighborhood study area, including sample collection, methodology, and procedures, as well as deviations from the final QAPP and final QAPP addendum. SI sampling was conducted in accordance with the EPA-approved final QAPP dated June 21, 2019, and the EPA-approved QAPP addendum, dated November 20, 2019 (Refs. 2; 3).

3.1 SAMPLE COLLECTION, METHODOLOGY, AND PROCEDURES

Tetra Tech conducted the focused SI sampling event during the week of September 9, 2019, and on December 3 and 4, 2019. Sampling locations are depicted on Figure 4 in Appendix A and described in Table 1 of Appendix B. During the sampling events, Tetra Tech collected five surface soil samples (including one duplicate), eight groundwater samples (including one duplicate), 13 surface water samples (including one duplicate and one seep), two indoor air samples, six crawl space air samples, 15 soil gas samples (including one split), and 16 ambient air samples (including two duplicates) (see Table 1 in Appendix B).

Tetra Tech followed sample collection procedures outlined in the final QAPP and final QAPP addendum (Refs. 2; 3). All samples were collected in accordance with EPA Region 4 LSASD Field Branches Quality System Technical Procedures (FBQSTP) (Refs. 4; 5; 6; 7; 8; 9).

3.2 DEVIATIONS FROM THE QUALITY ASSURANCE PROJECT PLAN

Some sampling locations during the field sampling events differed from sampling locations proposed in the final QAPP and final QAPP addendum because of site conditions. The following deviations in the field were documented in logbook notes, field sheets, and boring logs (see Appendix C):

- Pore water samples were not collected from either unnamed tributary because the pore water samplers could not penetrate the stream bed. Tetra Tech attempted to collect a pore water sample at the seep that forms the urban ditch (PSP22); however, the pump did not produce enough water for the sample.
- Soil gas implants were mudded in (mud appeared in tubing during sampling) at PSP17 and PSP18; therefore, soil gas samples were not collected at these locations (see Appendix C, pp. C-37, C-38).
- Ambient air samples (PSP20-AA and PSP20-AA-DUP) were added to the samples collected from PSP20.
- Because of several feet of fill material in the boring at sampling station PSP22, this sampling location was abandoned. This Station ID was applied to the seep location on the north side of Camborne Street, where a surface water sample and ambient air sample were collected.
- Access was not granted to sampling station PSP23; therefore, no samples were collected at this location.
- When a vacuum was applied to the soil gas implant at sampling station PSP26, no flow occurred; therefore, a soil gas sample was not collected at this location (see Appendix C, p. C-44).
- Refusal was encountered at 8 feet below ground surface (bgs) at sampling station PSP26; therefore, the temporary well proposed for this location was not installed; instead a temporary well was installed at PSP25 where a groundwater sample was collected (see Appendix C, pp. C-102, 104).
- Access was not granted to the original PSP28 location south of West Florida Street; therefore, a location in the parcel north of West Florida Street was designated PSP28 instead. PSP27 was also relocated so that PSP27 and PSP28 were evenly distributed across the property.
- The temporary monitoring wells installed at PSP27 and PSP28 did not produce water; therefore, groundwater samples were not collected at these locations.
- Temporary monitoring wells were allowed to stabilize for 24 hours after installation before sampling.
- Indoor air samples were planned at PSP25, PSP26, PSP29, and PSP30; however, access was not granted to the inside of these residences.

4.0 ANALYTICAL SUPPORT, METHODOLOGY, VALIDATION, DATA QUALITY, AND DATA QUALIFIERS

This section outlines analytical support, methodology, and validation, as well as analytical data quality and data qualifiers. EPA Region 4 LSASD analytical data packages are in Attachment 1, and the Tetra Tech field QC sample review is in Appendix F.

4.1 ANALYTICAL SUPPORT, METHODOLOGY, AND VALIDATION

The EPA Region 4 LSASD laboratory analyzed all samples collected during the focused SI for CVOCs, including 1,1-dichloroethene (DCE); cis-1,2-DCE; trans-1,2-DCE; tetrachloroethene (PCE); trichloroethene (TCE); and vinyl chloride, in accordance with the Laboratory Services Branch's (LSB) Laboratory Operations and Quality Assurance Manual (LOQAM), May 2019 (Ref. 10).

The EPA Region 4 LSASD reviewed all data in accordance with the Contract Laboratory Program (CLP) Statement of Work (SOW) and the LSB LOQAM methods and guidelines (Attachment 1, pp. A1-1, A1-45, A1-82, A1-103). To determine whether additional qualifications were warranted, Tetra Tech reviewed all field duplicate and field QC blank samples (equipment and field) in accordance with the EPA Contract Laboratory Program National Functional Guidelines (NFG) for Superfund Organic Methods Data Review, EPA-540-R-2017-002, January 2017 (Ref. 11). Based on the results of Tetra Tech's review, additional qualifiers were added to the analytical data where appropriate (see Appendix F).

4.2 ANALYTICAL DATA QUALITY AND DATA QUALIFIERS

All analytical data were subject to a quality assurance review, as described in the EPA Region 4 LSASD laboratory data evaluation guidelines. The text and analytical data tables presented in this report provide some concentrations as qualified with a "J," indicating that the identification of the analyte is acceptable but the reported value is an estimate. Some sample results are reported with a "U" qualifier, meaning that the analyte was not detected at or above the minimum reporting limit (MRL). The MRL is sample-specific and analyte-specific, and depends on preparation weights and volumes, dilutions, and moisture content of soil. Some sample results are reported with a "UJ" qualifier, meaning that the analyte was not detected at or above the MRL, which was considered approximate as a result of deficiencies in one or more QC criteria. Constituent concentrations in samples that equal or exceed three times detected background concentrations or that equal or exceed the sample-specific and analyte-specific MRLs for non-detect background sample results are considered elevated. Analytical data sheets are in Attachment 1, and the Tetra Tech field QC sample review is in Appendix F.

5.0 SOURCE SAMPLING

This section discusses the sources evaluated at the neighborhood study area, and sampling locations and analytical results for samples collected from the sources. EPA hypothesizes that the contaminated groundwater plume beneath the neighborhood study area is discharging to unnamed tributaries that flow through the neighborhood study area, and that from these unnamed tributaries volatilization of contaminants into the ambient air occurs. Therefore, the source evaluated for the neighborhood study area is the contaminated groundwater plume discharging to the unnamed tributaries. Thus, the sources identified and discussed in this SI report include: (1) a contaminated groundwater plume with no identified source, and (2) contaminated surface water hypothesized to have resulted from discharge of contaminated groundwater to surface water.

All source samples were analyzed for CVOCs (1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride). All groundwater source analytical results were compared to EPA Regional Screening Levels (RSL) for tapwater and EPA Maximum Contaminant Levels (MCL) (Refs. 12; 13). All surface water source analytical results were compared to background and EPA Surface Water Screening Values (SWSV) for freshwater (Ref. 14). Because of the industrial setting of the area, a suitable background groundwater location was not identified. The unnamed tributaries originate within the neighborhood study area; therefore, background surface water samples were collected from a separate, similar stream less than 1 mile southeast of the neighborhood study area.

Eight groundwater samples (including one duplicate) were collected within the neighborhood study area. Temporary monitoring well depths ranged from 6.5 to 20 feet bgs. Screen length for the wells was either 5 or 10 feet depending on the depth of the well. Ten surface water samples (including one duplicate) were collected from the bedrock and urban ditch unnamed tributaries (see Appendix E). Additionally, a surface water sample (PSP22-SEEP) was collected from a seep that forms the urban ditch unnamed tributary, and two background surface water samples were collected from a nearby similar tributary. Source sampling locations are depicted on Figure 4 in Appendix A. Installation and development of temporary monitoring wells were conducted in accordance with the EPA Region 4 LSASD FBQSTP for the Design and Installation of Monitoring Wells (SESDGUID-101-R1), January 2013 (Ref. 4). Source sampling activities were conducted in accordance with the EPA Region 4 LSASD FBQSTP for Groundwater Sampling (SESDPROC-301-R4), April 2017, and for Surface Water Sampling (SESDPROC-201-R4), December 2016 (Refs. 5; 6). Prior to intrusive work, a geophysical survey occurred at each sampling location to ensure no presence of obstructions, such as utility lines or tanks.

5.1 GROUNDWATER SAMPLING

This section briefly discusses the site geology and hydrogeology, as well as the groundwater analytical results.

5.1.1 Site Geology

Geology at the PSP site reflects the regional geology of the Carolina Slate Belt. The regolith consists of the soil layer and saprolite. The soil layer is about 3 feet thick and consists of dark brown to black clayey silt to silty clay with a high concentration of organic material. The saprolite consists of fine sandy silts to silty sands weathered from parent material, and is the dominant feature of the regolith. Its thickness ranges from 3 to 37 feet (Ref. 24, p. 2-3). The transition zone is beneath the regolith, and consists of clay to silty sand, with fragments of white feldspar, amphiboles, and minor quartz (Ref. 24, p. 2-4). The transition zone occurs between 15 and 37 feet bgs, and is about 12 to 17 feet thick. During installation of a well at the PSP site, bedrock was encountered at 51 feet bgs and consisted of moderately to slightly weathered, moderately hard to hard white and dark green porphyritic to aphanitic diorite in closely spaced fracture joints (Ref. 24, p. 2-4).

5.1.2 Site Hydrogeology

The groundwater system at the PSP site is similar to regional hydrogeology, and is composed of, in descending order, (1) saturated saprolite consisting of weathered bedrock with little residual structure; (2) transition zone, less weathered, which is more transmissive and retains the fracture structure and pattern of the underlying bedrock; and (3) bedrock zone (Ref. 24, p. 2-6). Descriptions of these hydrogeologic zones appear in boring logs recorded in the PSP site area (Ref. 24, p. 57).

The saprolite zone is reddish-brown in color; is composed of fine sand, silt, and clay; and contains relict bedrock features, such as mineral grains. Generally, thickness of the saprolite ranges from 50 to 70 feet, but is only 10 to 20 feet thick near streams (Ref. 25, pp. 4-4, 4-5).

The transition zone separates the saprolite and the fractured bedrock, and is divided into two sub-units, the unconsolidated zone and a highly-fractured rock zone (Ref. 25, p. 4-5). The unconsolidated transition zone is composed of a mixture of sand and gravel-sized fragments of weathered bedrock, and the fractured rock transition zone is composed of highly fractured bedrock. Boring logs advanced in the Patterson Street site area indicate encounter with the transition zone at depths ranging from 10 to 85 feet bgs, with thicknesses ranging from 15 to 64 feet (Ref. 25, p. 4-5).

The fractured bedrock zone is composed of gneissic granite with schist layers and diorite with veins of quartz and feldspar (Ref. 25, p. 4-6). Topography of the bedrock surface is highly variable. Top of bedrock was encountered at depths ranging from 55 to 124 feet bgs (Ref. 25, p. 4-6). Fracture frequency and orientation were measured at three monitoring well locations, and fracture characteristics differed at each location. Additionally, results of aquifer pump tests indicated hydraulic conductivity differences of two to three orders of magnitude within wells about 170 feet apart. The varying depths at which bedrock was encountered, differences in fracture frequency and orientation, and vastly different hydraulic conductivities within short distances highlight the extremely complex subsurface conditions in the Patterson Street site area (Ref. 25, p. 4-7).

5.1.3 Groundwater Sampling Analytical Results

Groundwater samples collected within the neighborhood study area contained 1,1-DCE up to 220 micrograms per liter (µg/L); cis-1,2-DCE up to 140 µg/L; PCE up to 460 µg/L; and TCE up to 640 µg/L. Vinyl chloride and trans-1,2-DCE were not detected in groundwater samples at concentrations above sample-specific MRLs. cis-1,2-DCE; PCE; and TCE were detected at concentrations exceeding both their EPA RSLs for tapwater and EPA MCLs. 1,1-DCE was detected at concentrations exceeding its EPA MCL (see Table 2 in Appendix B). Detected concentrations of 1,1-DCE; PCE; and TCE exceeded their EPA Vapor Intrusion Screening Levels (VISL) Target Groundwater Concentrations (195 µg/L, 14.9 µg/L, and 1.19 µg/L, respectively), indicating a potential for volatile contaminants in groundwater to cause vapor intrusion into overlying structures (Ref. 16). In September 2018, Ashland Chemical collected a groundwater sample from monitoring well MW-32BR, located adjacent to the bedrock unnamed tributary within the neighborhood study area, that contained 1,1-DCE (150 µg/L); cis-1,2-DCE (89 µg/L); PCE (560 µg/L); and TCE (380 µg/L) (Ref. 15, Table 2, Figure 2).

5.2 SURFACE WATER SAMPLING ANALYTICAL RESULTS

Surface water samples collected from both the urban ditch and bedrock unnamed tributaries contained elevated concentrations of 1,1-DCE up to 40 µg/L; cis-1,2-DCE up to 20 µg/L; PCE up to 88 µg/L; TCE up to 33 µg/L; and vinyl chloride up to 1.3 µg/L. Trans-1,2-DCE was not detected in surface water samples at concentrations above sample-specific MRLs. Contaminant concentrations did not exceed EPA SWSVs for freshwater (see Table 3 in Appendix B). Each of these contaminants meet the definition for volatility (i.e. Henry's Law Constant greater than 1E-5 or vapor pressure greater than 1), indicating potential for the contaminant to volatilize from surface water into ambient air.

The seep that forms the urban ditch unnamed tributary contained elevated concentrations of cis-1,2-DCE at 2.8 µg/L; PCE at 3.0 µg/L; and TCE at 2.1 µg/L (see Table 3 in Appendix B).

5.3 SOURCE CONCLUSIONS

Tetra Tech collected eight groundwater samples (including one duplicate) throughout the neighborhood study area in September 2019. In addition, Tetra Tech collected 13 surface water samples (including one duplicate and one seep). Analytical results indicate the presence of 1,1-DCE; cis-1,2-DCE; PCE; and TCE at elevated concentrations in both groundwater and surface water samples.

6.0 SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

This section discusses the soil exposure and subsurface intrusion pathway, including sampling locations and analytical results from samples collected and recounts relevant previous investigations. Surface soil, soil gas, indoor air, and crawl space air sampling locations are depicted on Figure 4 in Appendix A and described in Table 1 of Appendix B.

6.1 SOIL EXPOSURE COMPONENT

To rule out overland flow as a source of contamination in surface water, Tetra Tech collected five surface soil (0 to 6 inches bgs) samples (including one duplicate) at residential properties adjacent to the unnamed tributaries. Land use surrounding the neighborhood study area is a mixture of industrial, commercial, and residential (Refs. 17, Figure 1-1; 18, Figure 1). The topography of the neighborhood study area slopes to the south and east toward unnamed tributaries (urban ditch and bedrock) (see Figure 1 and Figure 2 in Appendix A).

Surface soil samples were collected in accordance with the EPA Region 4 LSASD FBQSTP for Soil Sampling (SESDPROC-300-R3), August 2014 (Ref. 7). All surface soil samples were analyzed for 1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride. Analytical results from surface soil samples were compared to EPA RSLs for residential soil (Ref. 12). The complete set of EPA Region 4 analytical data sheets is in Attachment 1, and the Tetra Tech field QC sample review is in Appendix F.

CVOCs were not detected in any of the surface soil samples. These results indicate that overland flow is likely not the cause of CVOC contamination of the unnamed tributaries (urban ditch and bedrock) within the neighborhood study area.

6.2 SUBSURFACE INTRUSION COMPONENT

Discussed below are previous investigations relevant to this pathway of concern, as well as analytical results from soil gas, indoor air, crawl space air, and ambient air sampling for this SI. A complete vapor intrusion pathway consists of five elements: (1) a subsurface source of vapor-forming chemicals is present beneath and near a building; (2) vapors form and have a route along which to migrate toward the building; (3) the building is susceptible to soil gas entry, which means openings exist for the vapors to enter the building; (4) vapor-forming chemicals comprising the subsurface vapor source are present in the indoor environment; and (5) the building is occupied when these chemicals are present indoors (Ref. 21, p. 22).

Soil gas samples were collected in accordance with the EPA Region 4 LSASD FBQSTP for Soil Gas Sampling (SESDPROC-307-R3), May 2014 (Ref. 8). Indoor air, crawl space air, and ambient air samples were collected in accordance with the EPA Region 4 LSASD FBQSTP for Ambient Air Sampling (SESDPROC-303-R5), March 2016 (Ref. 9). Before initiating crawl space and indoor air sampling, Tetra Tech reviewed with each resident the list of potential household sources on the NCDEQ *Indoor Air Building Survey and Sampling Form*. All listed household products present within the residence were sealed in a plastic bag 12 hours before sampling. Crawl space, indoor air, and ambient air samples were collected in individually-certified, 6-liter, stainless steel Summa canisters with 24-hour flow controllers.

All soil gas, indoor air, and crawl space air samples were analyzed for CVOCs (1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride). Based on the predominant wind direction (west-northwest) during the December 2019 event, ambient air sample PSP25-AA was chosen to represent background conditions for comparison to results from indoor air and crawl space air samples also collected in December 2019. A detailed description of SI ambient air sampling is in Section 7.0 of this SI report. Analytical results from soil gas samples were compared to EPA VISLs (Ref. 15). In addition to background, results from indoor air and crawl space air samples were also compared to EPA RSLs for residential air. The complete set of EPA Region 4 analytical data sheets is in Attachment 1, and the Tetra Tech field QC sample review is in Appendix F. Soil gas, indoor air, crawl space air, and ambient air sampling locations are depicted on Figure 4 in Appendix A, and described in Table 1 of Appendix B.

6.2.1 Relevant Previous Investigations

In June and October 2016, S&ME, on behalf of NCDEQ, investigated six residential properties on Camborne Street, south of Patterson Street (Ref. 19, pp. 1, 2, 11) (see Figure 4 in Appendix A). During the investigation, five crawl space air samples and two indoor air samples were collected to assess

potential VI risks (Ref. 19, pp. 1, 2). Indoor air sample results indicated the presence of TCE at concentrations exceeding the NCDEQ Inactive Hazardous Site Branch (IHSB) Indoor Air Screening Level (IASL) (Ref. 19, pp. 3, 12). Crawl space air sample results indicated the presence of PCE and TCE at concentrations greater than NCDEQ IHSB IASLs (Ref. 19, pp. 3, 12). Temporary air filters were offered to residents to reduce health risks until installations of mitigation systems, or more permanent filter systems, could occur (Ref. 22, p. 1).

Based on findings from the June and October 2016 NCDEQ investigations, in May 2017, Tetra Tech, on behalf of EPA, conducted an assessment ("Stage 1") to determine if conditions warranted a removal action. The assessment included crawl space air and soil gas sampling along the same street within the neighborhood study area (Ref. 18, p. 2). Exterior soil gas and crawl space air sample results indicated the presence of PCE and TCE at concentrations exceeding their respective EPA VISLs and NCDEQ IHSB IASLs (Ref. 18, p. 4).

Based on the results of the Stage 1 investigation, in March 2018, Tetra Tech, on behalf of EPA and NCDEQ, performed additional assessment work (described as "Stage 2") (Ref, 23, pp. 1, 2). Results of the "Stage 1" assessment indicated the presence of PCE and TCE in crawl space air and soil gas samples at concentrations exceeding EPA and NCDEQ comparison criteria (Ref. 23, p. 2). The purpose of Stage 2 activities was to delineate the lateral extent of contamination by sampling external soil gas over a wide radius, extending downgradient from the Patterson Street industrial corridor (Ref. 23, p. 2). Based on data gathered during the Stage 2 investigation, the plume does not appear to extend west of South Holden Road or east of the north/south stretch of Swan Street. The southern extent of the plume was not identified because access could not be obtained to proposed sampling locations at residential properties south of Swan Street (Ref. 23, p. 3, Enclosure 1, Figure 2).

6.2.2 SI Indoor Air, Crawl Space Air, and Soil Gas Sampling Analytical Results

During the focused SI, Tetra Tech collected six crawl space air samples at six residential properties. Additionally, two indoor air samples were collected at two of the six residential properties. Ambient air sample PSP25-AA was selected to represent background concentrations for indoor air and crawl space air samples. Indoor air samples contained elevated concentrations of 1,1-DCE (up to 0.41 micrograms per cubic meter [µg/m^3]); PCE (up to 1.6 µg/m^3); and TCE (up to 0.93 µg/m^3). Crawl space air samples contained elevated concentrations of 1,1-DCE (up to 2.8 µg/m^3); PCE (up to 2.8 µg/m^3); and TCE (up to 1.1 µg/m^3). TCE concentrations exceeded the EPA RSL for residential air in one indoor air and three crawl space air samples (see Table 5 in Appendix B). Indoor air and crawl space air concentrations were

similar to ambient air concentrations, indicating that indoor air concentrations may be attributable to VI or to outdoor air entering the home, or a combination of both.

Tetra Tech collected 15 exterior soil gas samples (including one split) throughout the neighborhood study area. Soil gas samples contained 1,1-DCE up to 700 µg/m^3; cis-1,2-DCE up to 740 µg/m^3; trans-1,2-DCE up to 11 µg/m^3; PCE up to 3,600 µg/m^3; TCE up to 3,300 µg/m^3; and vinyl chloride up to 35 µg/m^3 (see Table 6 in Appendix B). Soil gas concentrations of PCE, TCE, and vinyl chloride exceed the EPA VISL Target Sub-Slab and Near-source Soil Gas Concentrations.

7.0 AIR MIGRATION PATHWAY

This section discusses the air migration pathway, recounts relevant previous investigations, specifies the targets associated with the pathway, and draws pathway-specific conclusions. Also discussed are sampling locations and analytical results for samples collected to evaluate the air migration pathway during the focused SI.

Ambient air samples were collected in accordance with the EPA Region 4 LSASD FBQSTP for Ambient Air Sampling (SESDPROC-303-R5), March 2016 (Ref. 9). Ambient air sampling locations are depicted on Figure 4 in Appendix A and described in Table 1 of Appendix B. For samples collected September 9 and 10, 2019, the predominant wind direction was from the east at about 5 miles per hour (mph); therefore, ambient air sample PSP24-AA was chosen to represent background for September 2019 samples. For samples collected December 3 and 4, 2019, the predominant wind direction was from the west-northwest at about 8 mph; therefore, ambient air sample PSP25-AA was chosen to represent background for December 2019 samples (Ref. 26).

All ambient air samples were analyzed for 1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride. Analytical results from ambient air samples were compared to data from background ambient air samples and EPA RSLs for residential air (Ref. 12). The complete set of EPA Region 4 analytical data sheets is in Attachment 1, and the Tetra Tech field QC sample review is in Appendix F.

7.1 RELEVANT PREVIOUS INVESTIGATIONS

In June 2016, S&ME, on behalf of NCDEQ, investigated six residential properties on Camborne Street, south of Patterson Street (Ref. 19, pp. 1, 2, 11) (see Figure 4 in Appendix A). During the investigation, one ambient air sample was collected. The ambient air sample contained 1,1-DCE at 0.172 µg/m^3, and TCE at 0.131 µg/m^3 (Ref. 19, pp. 3, 9, 12).

Based on the June 2016 S&ME sample results, Tetra Tech collected two additional ambient air samples in October 2016 along Camborne Street (Ref. 18, pp. 1, 2, Figure 3). One ambient air sample contained TCE at 0.73 µg/m^3 (Ref. 18, Table 2).

7.2 SI AMBIENT AIR SAMPLING ANALYTICAL RESULTS

During the SI, Tetra Tech collected nine ambient air samples (including one duplicate) during the September 2019 event and five ambient air samples (including one duplicate) during the December 2019 event throughout the neighborhood study area.

Ambient air samples collected in September 2019 contained elevated concentrations of 1,1-DCE (up to 3.7 µg/m^3); cis-1,2-DCE (up to 2.1 µg/m^3); trans-1,2-DCE (up to 0.40 µg/m^3); PCE (up to 6.6 µg/m^3); TCE (up to 3.3 µg/m^3); and vinyl chloride (up to 0.16 µg/m^3). PCE exceeded its EPA RSL for residential air in one sample (PSP28), and TCE concentrations exceeded its EPA RSL for residential air in six samples (see Table 7 in Appendix B).

Ambient air samples collected in December 2019 contained elevated concentrations of PCE (up to 0.99 µg/m^3) and TCE (up to 0.96 µg/m^3). TCE concentrations exceeded its EPA RSL for residential air in two samples (see Table 7 in Appendix B).

7.3 AIR MIGRATION PATHWAY TARGETS

About 9,044 people live within 1 radial mile of the study area, and about 133,924 people live within 4 radial miles of the study area. The residential population within a 4-mile radius of the study area is distributed as follows: >0 to 0.25 mile, 246 persons; >0.25 to 0.50 mile, 1,871 persons; >0.50 to 1.0 mile, 6,927 persons; >1.0 to 2.0 miles, 28,948 persons; >2.0 to 3.0 miles, 46,514 persons; >3.0 to 4.0 miles, 49,418 persons (Ref. 20).

7.4 AIR MIGRATION PATHWAY CONCLUSIONS

The neighborhood study area is within a mixed industrial, commercial, and residential area. Site-related CVOCs have been detected in ambient air within the study area at elevated concentrations and/or exceeding EPA comparison criteria. About 246 people reside within 0.25 mile of the study area (Ref. 20).

8.0 SUMMARY AND CONCLUSIONS

The PSP site is defined as a contaminated groundwater plume with no definitive source. The PSP site is located in about 349.1 acres of land surrounding the intersection of Patterson Street and South Holden Road in Greensboro, Guilford County, North Carolina. Site boundaries have not been defined. Several industrial facilities are within the Patterson Street industrial corridor, including Ashland Chemical, Dow Corning, Ecoflo, and the NCDOT Site # 61, among others. The Patterson Street industrial corridor hosts major suppliers of blended bulk chemicals to furniture, textile, and other manufacturing businesses. Releases to the environment of CVOCs are known or suspected to have occurred at four NCDEQ IHSB sites and three RCRA sites along the Patterson Street industrial corridor. Given the large number of potential sources of the groundwater contamination in the Patterson Street industrial corridor, definitive identification of a single or multiple sources of that contamination was beyond the scope of the SI.

This SI focused on: (1) a residential neighborhood, referred to as the neighborhood study area, south of the Patterson Street industrial corridor, and (2) unnamed tributaries originating within the study area referred to as the urban ditch unnamed tributary and the bedrock unnamed tributary. The study area is bordered to the north by Immanuel Road, to the east by Belmar Street, to the south by North Hayden Street, and to the west by South Holden Road.

EPA hypothesizes that the contaminated groundwater plume is discharging to unnamed tributaries (urban ditch and bedrock) that flow through the neighborhood, and that from these unnamed tributaries volatilization of contaminants into the ambient air occurs. Therefore, the source evaluated was the contaminated groundwater plume discharging to the unnamed tributaries.

Groundwater samples collected within the study area contained cis-1,2-DCE; PCE; and TCE at concentrations exceeding both their EPA RSLs for tapwater and EPA MCLs. 1,1-DCE was detected at concentrations exceeding its EPA MCL. In September 2018, Ashland Chemical collected a groundwater sample from monitoring well MW-32BR, located within the neighborhood study area, that contained 1,1-DCE; cis-1,2-DCE; PCE; and TCE.

Surface water samples collected from both the urban ditch and bedrock unnamed tributaries contained elevated concentrations of 1,1-DCE; cis-1,2-DCE; PCE; TCE; and vinyl chloride. No CVOCs exceeded EPA SWSVs for freshwater. The seep that originates the urban ditch contained elevated concentrations of cis-1,2-DCE; PCE; and TCE.

To rule out overland flow as a source of contamination in surface water, Tetra Tech collected five surface soil samples at residential properties adjacent to the unnamed tributaries. CVOCs were not detected in any of the surface soil samples.

Tetra Tech collected two indoor air and six crawl space air samples during the SI. Indoor air and crawl space air samples contained elevated concentrations of 1,1-DCE; PCE; and TCE. TCE concentrations exceeded its EPA RSL in one indoor air and three crawl space air samples.

Tetra Tech collected 15 exterior soil gas samples throughout the neighborhood study area. Soil gas samples contained 1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride. Soil gas concentrations of PCE, TCE, and vinyl chloride exceed the EPA VISLs.

Tetra Tech collected 16 ambient air samples throughout the neighborhood study area. Ambient air samples contained elevated concentrations of 1,1-DCE; cis-1,2-DCE; trans-1,2-DCE; PCE; TCE; and vinyl chloride. PCE exceeded the EPA RSL for residential air in one sample (PSP28), and TCE concentrations exceeded the EPA RSL for residential air in eight samples.

The same chlorinated solvents found in source samples (groundwater and surface water) were also found in soil gas and air samples.

The PSP site is within a mixed industrial, commercial, and residential area. Several factors suggest that the PSP site may pose a risk to human health via air migration, and site-related CVOCs have been detected in ambient air within the neighborhood study area. About 246 people reside within 0.25 mile of the PSP site.

Based on a review of historical documentation, communications with NCDEQ personnel, and analytical data acquired during the SI, Tetra Tech recommends further action under CERCLA at the PSP site at the discretion of EPA.

9.0 REFERENCES

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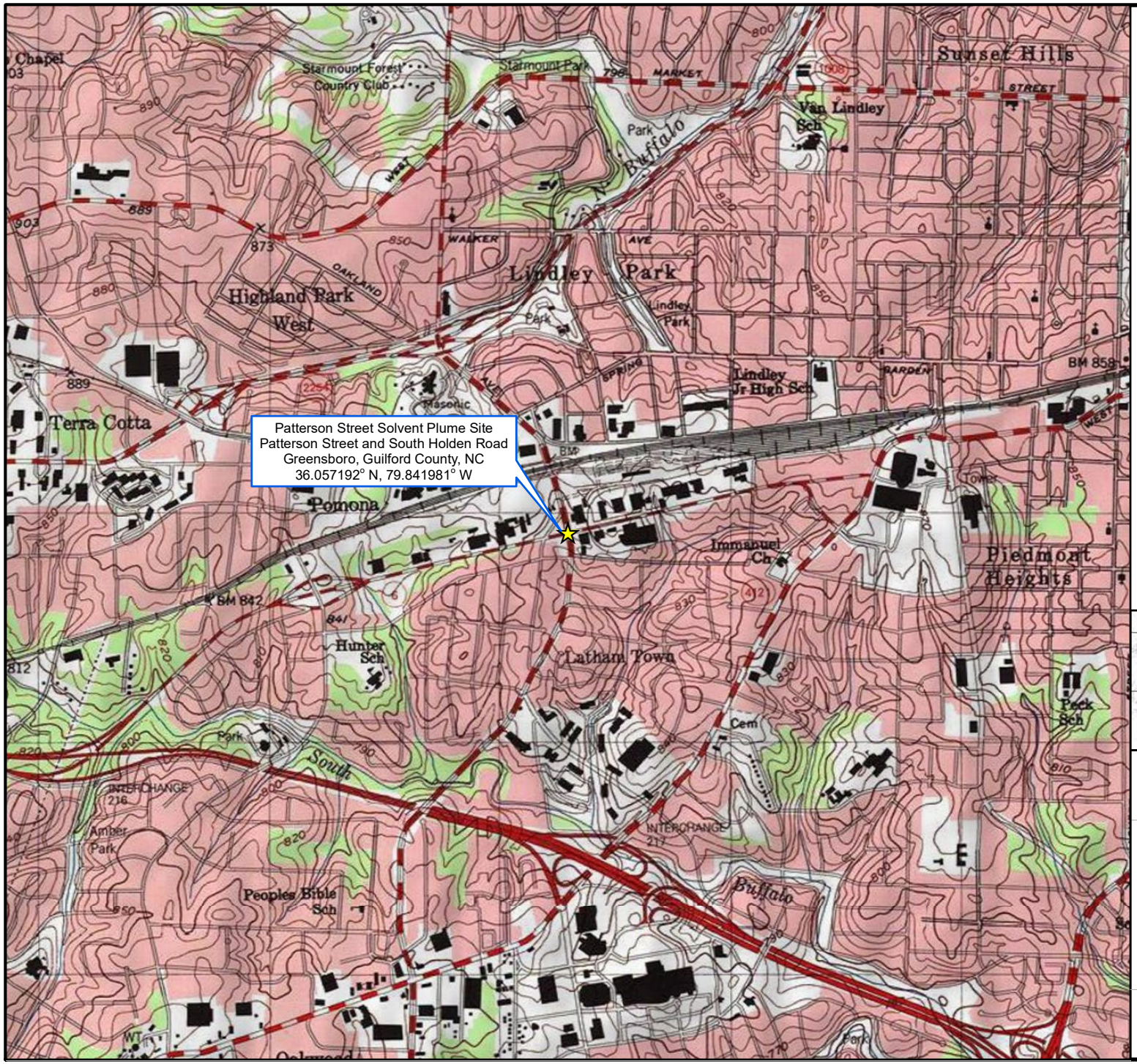
APPENDIX A

FIGURES

(Four Pages)

Figure



Legend

★ Site Location

N
W E
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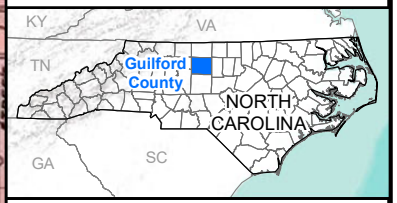
0 1,000 2,000
Feet

Map Source:
USGS 7.5 Minute Topographic Quadrangle Map:
Greensboro, NC 1997.



United States Environmental Protection Agency
Region 4

FIGURE 1

Site Location

TDD Name: Patterson Street Solvent Plume Site

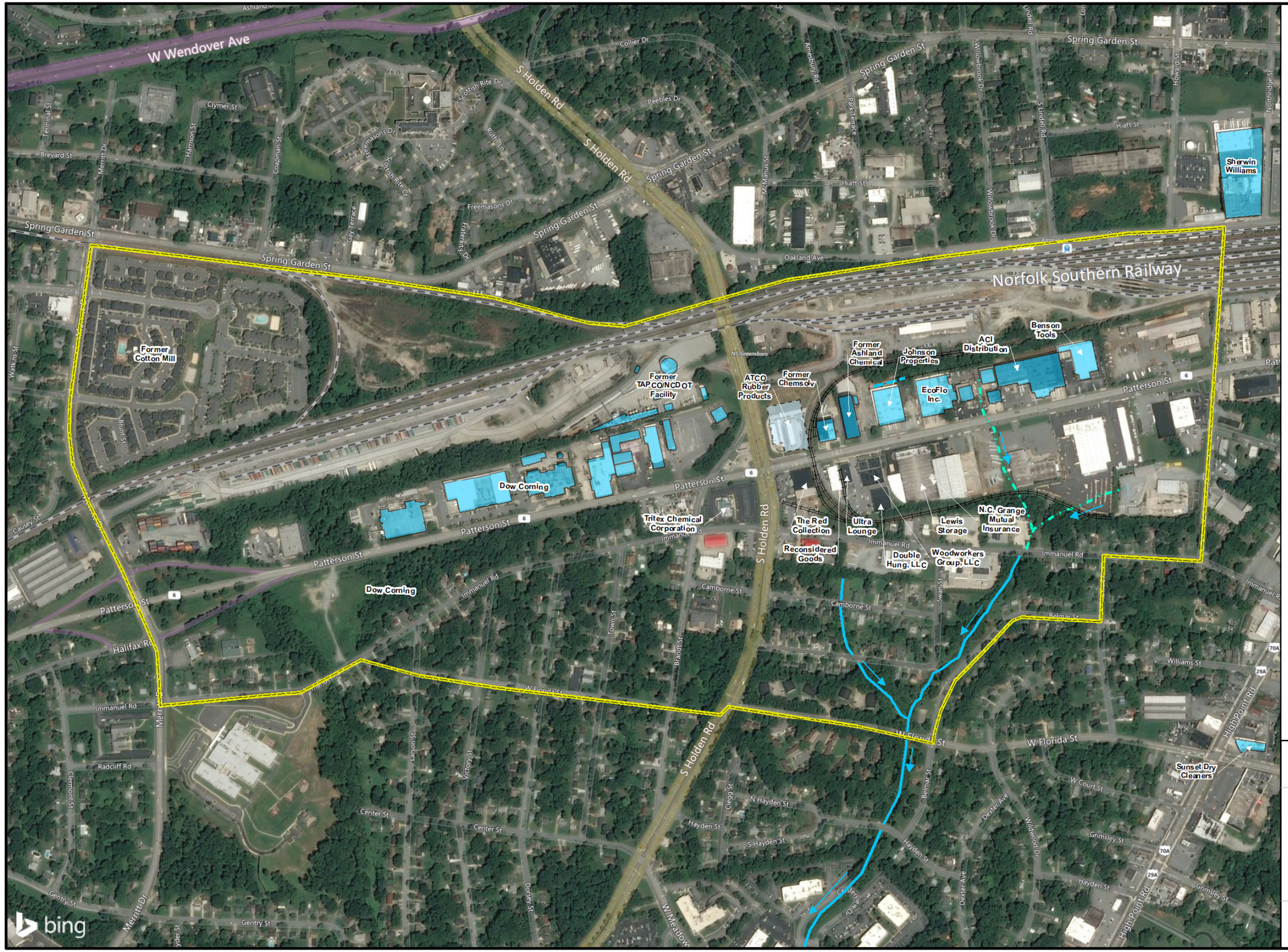
TDD No.: TT-05-041

City:	County:	State:
Greensboro	Guilford	North Carolina

TETRA TECH

Date: 1/15/2019
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\site_location.mxd



Legend

- Drainage Ditch
- Railroad Spur
- Former Railroad Spur
- Stream
- Underground Stream
- Direction of Flow
- Approximate Study Area
- Building
- Former Building

N
W E
S

0 275 550
Feet

Notes:
NCDOT - North Carolina Department of Transportation
TAPCO - Thompson Arthur Paving Company

Map Source:
Bing Maps Aerial Imagery, 2015.

United States Environmental Protection Agency Region 4

FIGURE 2

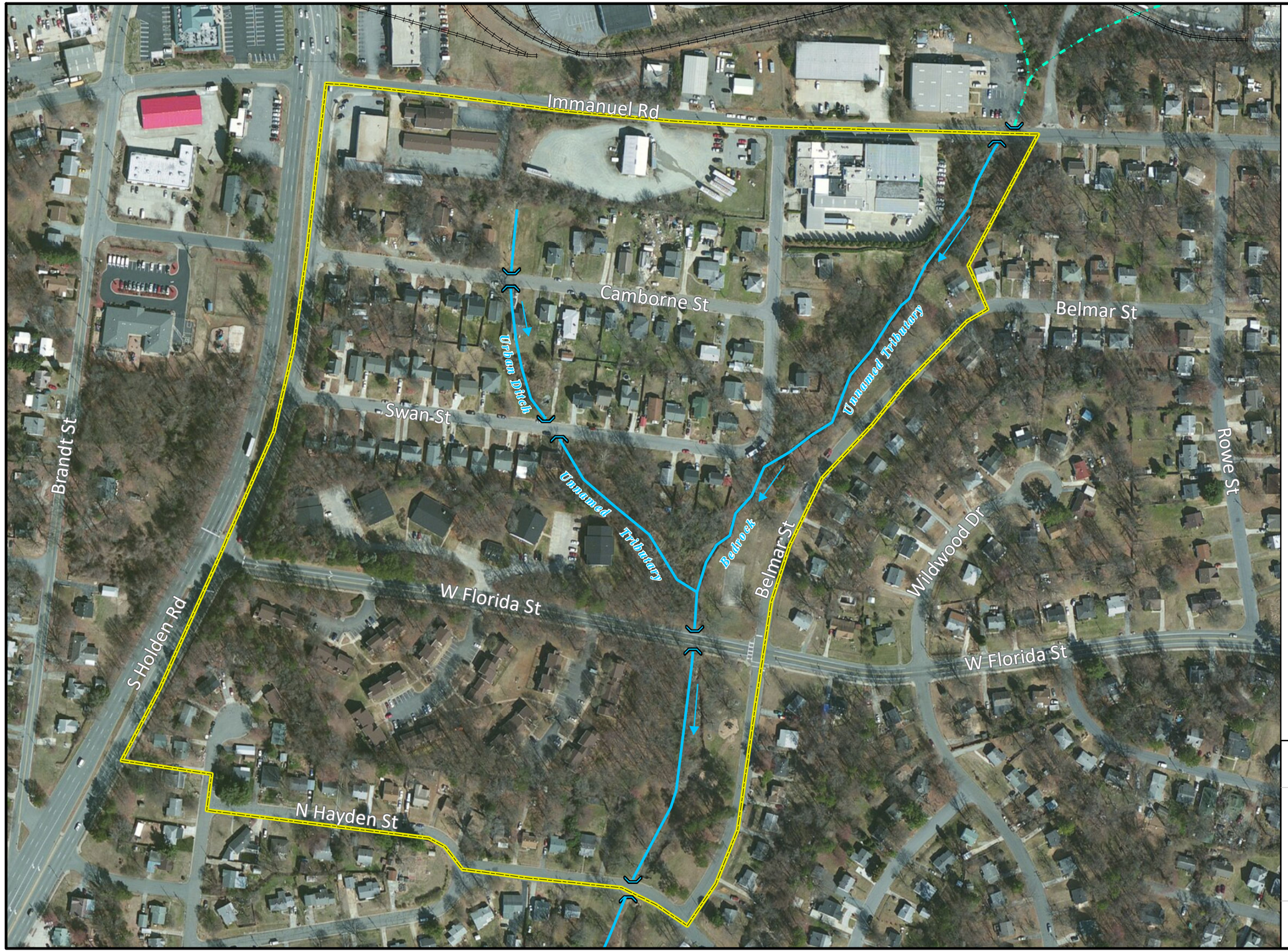
Patterson Street Solvent Plume Area

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/21/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\site_layout.mxd



Legend

- Railroad Spur
- Unnamed Tributary
- Underground Stream
- Direction of Flow
- Culvert
- Approximate Extent of Neighborhood Study Area

N
W E
S

0 150 300
Feet

Map Source:
Bing Maps Aerial Imagery, 2015.

United States Environmental Protection Agency Region 4

FIGURE 3

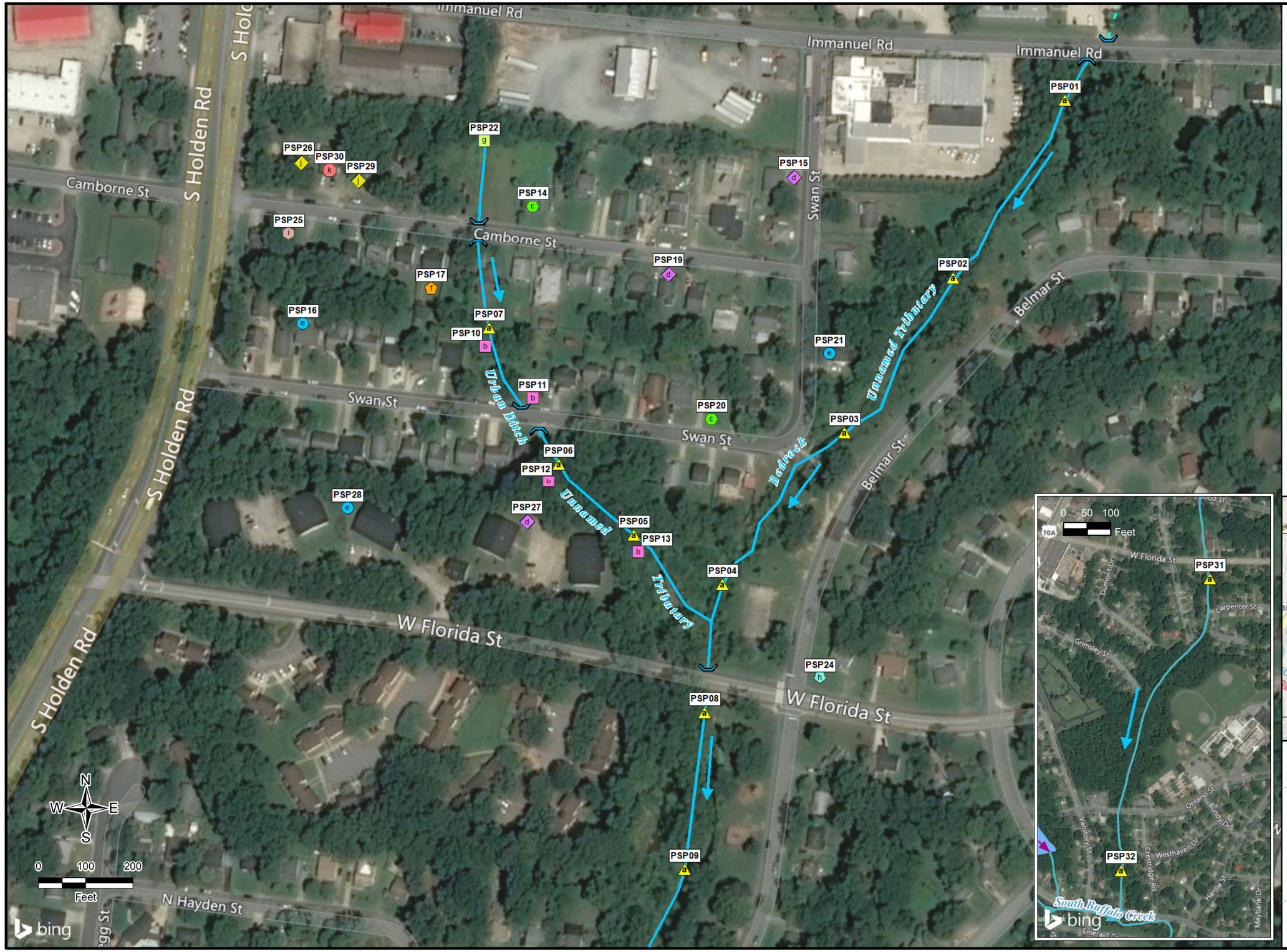
Neighborhood Study Area

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro **County:** Guilford **State:** North Carolina

TETRA TECH

Date: 1/21/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\study_area_neighborhood_layout.mxd

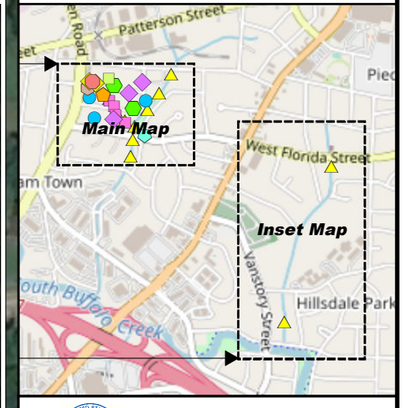


Legend

- Surface Water Sample
- Groundwater, Soil Gas, Ambient Air, and Surface Soil Sample
- Soil Gas, Crawl Space Air, Indoor Air, and Ambient Air Sample
- Soil Gas Sample
- Soil Gas and Ambient Air Sample
- Groundwater Sample
- Surface Water and Ambient Air Sample
- Groundwater, Soil Gas, and Ambient Air Sample
- Groundwater, Soil Gas, Crawl Space Air, and Ambient Air Sample
- Ambient Air and Crawl Space Air Sample
- Crawl Space Air Sample
- Unnamed Tributary
- Underground Stream
- Direction of Flow
- Culvert

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States
Environmental Protection Agency
Region 4

FIGURE 4

SI Sampling Locations

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/31/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\sampling_locations.mxd

APPENDIX B

TABLES

(Nine Pages)

Table

TABLE 1
PATTERSON STREET SOLVENT PLUME SI
SAMPLING LOCATIONS

Station ID	Sample ID	Depth (bgs)	Sample Matrix	Analysis	Sample Location
PSP01	PSP01-SW	NA	Surface Water	CVOCs	About 1,480 feet northeast from the intersection of South Holden Road and Camborne Street
	PSP01-SW-DUP				
PSP02	PSP02-SW	NA	Surface Water	CVOCs	About 1,270 feet east of the intersection of South Holden Road and Camborne Street
PSP03	PSP03-SW	NA	Surface Water	CVOCs	About 1,110 feet southeast of the intersection of South Holden Road and Camborne Street
PSP04	PSP04-SW	NA	Surface Water	CVOCs	About 1,060 feet southeast of the intersection of South Holden Road and Camborne Street
PSP05	PSP05-SW	NA	Surface Water	CVOCs	About 900 feet southeast of the intersection of South Holden Road and Camborne Street
PSP06	PSP06-SW	NA	Surface Water	CVOCs	About 740 feet southeast of the intersection of South Holden Road and Camborne Street
PSP07	PSP07-SW	NA	Surface Water	CVOCs	About 475 feet southeast of the intersection of South Holden Road and Camborne Street
PSP08	PSP08-SW	NA	Surface Water	CVOCs	About 1,110 feet southeast of the intersection of South Holden Road and Camborne Street
PSP09	PSP09-SW	NA	Surface Water	CVOCs	About 1,270 feet southeast of the intersection of South Holden Road and Camborne Street
PSP10	PSP10-GW	5 to 10 feet	Groundwater	CVOCs	About 470 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP10-SF	0 to 6 inches	Surface Soil	CVOCs	
	PSP10-AA	NA	Ambient Air	CVOCs	
	PSP10-AA-DUP				
	PSP10-SG	1.5 to 2 feet	Soil Gas	CVOCs	
PSP11	PSP11-GW	2 to 7 feet	Groundwater	CVOCs	About 600 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP11-SF	0 to 6 inches	Surface Soil	CVOCs	
	PSP11-SF-DUP				
	PSP11-AA	NA	Ambient Air	CVOCs	
	PSP11-SG	3.5 to 4 feet	Soil Gas	CVOCs	
PSP12	PSP12-GW	5 to 10 feet	Groundwater	CVOCs	About 730 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP12-SF	0 to 6 inches	Surface Soil	CVOCs	
	PSP12-AA	NA	Ambient Air	CVOCs	
	PSP12-SG	2.5 to 3 feet	Soil Gas	CVOCs	
PSP13	PSP13-GW	15 to 20 feet	Groundwater	CVOCs	About 900 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP13-SF	0 to 6 inches	Surface Soil	CVOCs	
	PSP13-AA	NA	Ambient Air	CVOCs	
	PSP13-SG	5.5 to 6 feet	Soil Gas	CVOCs	
	PSP13-SG-SPLIT				
PSP14	PSP14-SG	7 to 7.5 feet	Soil Gas	CVOCs	About 535 feet east of the intersection of South Holden Road and Camborne Street
	PSP14-CS	NA	Crawl Space Air	CVOCs	
	PSP14-IA	NA	Indoor Air	CVOCs	
	PSP14-AA	NA	Ambient Air	CVOCs	

TABLE 1
PATTERSON STREET SOLVENT PLUME SI
SAMPLING LOCATIONS

Station ID	Sample ID	Depth (bgs)	Sample Matrix	Analysis	Sample Location
PSP15	PSP15-SG	6.5 to 7 feet	Soil Gas	CVOCs	About 930 feet east of the intersection of South Holden Road and Camborne Street
PSP16	PSP16-AA	NA	Ambient Air	CVOCs	About 230 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP16-SG	14.5 to 15 feet	Soil Gas	CVOCs	
PSP17	PSP17-GW	3.5 to 13.5 feet	Groundwater	CVOCs	About 330 feet southeast of the intersection of South Holden Road and Camborne Street
PSP19	PSP19-SG	6.5 to 7 feet	Soil Gas	CVOCs	About 740 feet east of the intersection of South Holden Road and Camborne Street
PSP20	PSP20-SG	5.5 to 6 feet	Soil Gas	CVOCs	About 880 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP20-CS	NA	Crawl Space Air	CVOCs	
	PSP20-IA	NA	Indoor Air	CVOCs	
	PSP20-AA	NA	Ambient Air	CVOCs	
	PSP20-AA-DUP				
PSP21	PSP21-AA	NA	Ambient Air	CVOCs	About 1,070 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP21-SG	2.5 to 3 feet	Soil Gas	CVOCs	
PSP22	PSP22-SEEP	NA	Surface Water	CVOCs	About 450 feet northeast of the intersection of South Holden Road and Camborne Street
	PSP22-AA	NA	Ambient Air	CVOCs	
PSP24	PSP24-GW	1.5 to 6.5 feet	Groundwater	CVOCs	Northeastern corner of West Florida Street and Belmar Street
	PSP24-GW-DUP				
	PSP24-AA	NA	Ambient Air	CVOCs	
	PSP24-SG	2.5 to 3 feet	Soil Gas	CVOCs	
PSP25	PSP25-GW	5 to 10 feet	Groundwater	CVOCs	About 77 feet southeast of the intersection of South Holden Road and Camborne Street
	PSP25-SG	1.5 to 2 feet	Soil Gas	CVOCs	
	PSP25-CS	NA	Crawl Space Air	CVOCs	
	PSP25-AA	NA	Ambient Air	CVOCs	
PSP26	PSP26-AA	NA	Ambient Air	CVOCs	About 170 feet northeast of the intersection of South Holden Road and Camborne Street
	PSP26-CS	NA	Crawl Space Air	CVOCs	
PSP27	PSP27-SG	9.5 to 10 feet	Soil Gas	CVOCs	About 600 feet southeast of the intersection of South Holden Road and Swan Street
PSP28	PSP28-AA	NA	Ambient Air	CVOCs	About 350 feet southeast of the intersection of South Holden Road and Swan Street
	PSP28-SG	6.5 to 7 feet	Soil Gas	CVOCs	
PSP29	PSP29-CS	NA	Crawl Space Air	CVOCs	About 235 feet northeast of the intersection of South Holden Road and Camborne Street
	PSP29-AA	NA	Ambient Air	CVOCs	
PSP30	PSP30-CS	NA	Crawl Space Air	CVOCs	About 175 feet northeast of the intersection of South Holden Road and Camborne Street
PSP31	PSP31-SW	NA	Surface Water	CVOCs	About 0.6 mile southeast of the bedrock stream in the PSP study area
PSP32	PSP32-SW	NA	Surface Water	CVOCs	About 0.75 mile southeast of the bedrock stream in the PSP study area

TABLE 1
PATTERSON STREET SOLVENT PLUME SI
SAMPLING LOCATIONS

Notes:

AA	Ambient air sample
bgs	Below ground surface
CS	Crawl space air
CVOCs	Chlorinated volatile organic compounds (1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, and vinyl chloride)
DCE	Dichloroethene
DUP	Duplicate
GW	Groundwater sample
IA	Indoor air
ID	Identification
NA	Not applicable
PCE	Tetrachloroethene
PSP	Patterson Street Solvent Plume
SF	Surface soil sample
SG	Soil gas sample
SW	Surface water sample
TCE	Tetrachloroethene

TABLE 2
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

Analyte	EPA RSL Tapwater	EPA MCL	PSP10 PSP10-GW	PSP11 PSP11-GW	PSP12 PSP12-GW	PSP13 PSP13-GW	PSP17 PSP17-GW	PSP24 PSP24-GW	PSP24 PSP24-GW-DUP	PSP25 PSP25-GW
Chlorinated Volatile Organic Compounds (µg/L)										
1,1-Dichloroethene	280	7	0.13 J	0.50 U	0.50 U	0.50 U	110	0.50 U	0.50 U	220
cis-1,2-Dichloroethene	36	70	0.50 U	0.50 U	0.50 U	0.50 U	140	0.50 U	0.50 U	74
Tetrachloroethene	11	5	0.50 U	0.50 U	0.29 J	0.50 U	460	0.50 U	0.50 U	140
trans-1,2-Dichloroethene	36	100	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	2.5 U
Trichloroethene	0.49	5	0.14 J	0.50 U	0.18 J	0.50 U	640	0.50 U	0.50 U	120
Vinyl chloride	0.019	2	0.50 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U	2.5 U

Notes:

DUP	Duplicate
EPA	U.S. Environmental Protection Agency
GW	Groundwater
J	The identification of the analyte is acceptable; the reported value is an estimate.
MCL	2018 Maximum Contaminant Level
µg/L	Micrograms per liter
PSP	Patterson Street Solvent Plume
RSL	November 2019 Regional Screening Level (Target Risk=1E-06, Hazard Quotient=1.0) for tapwater
U	Analyte not detected at concentration at or above reporting limit.
	Shaded values exceed the EPA RSL for tapwater or the EPA MCL.

TABLE 3
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES

	EPA SWSV		Background		PSP01		PSP02	PSP03	PSP04	PSP05
	Freshwater		PSP31	PSP32		PSP01-SW-DUP				
Analyte	Chronic	Acute	PSP31-SW	PSP32-SW	PSP01-SW		PSP02-SW	PSP03-SW	PSP04-SW	PSP05-SW
Chlorinated Volatile Organic Compounds (µg/L)										
1,1-Dichloroethene	130	1,200	0.50 U	0.50 U	**27**	**28**	**6.8**	**9.6**	**40**	**8.0**
cis-1,2-Dichloroethene	620	5,500	0.50 U	0.50 U	**1.8**	**1.8**	**5.4**	**12**	**20**	**5.3**
Tetrachloroethene	53	430	0.50 U	0.50 U	**5.9**	**5.8**	**16**	**88**	**49**	**8.6**
trans-1,2-Dichloroethene	558	10,046	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	220	2,000	0.50 U	0.50 U	**6.3**	**6.4**	**7.4**	**33**	**31**	**6.2**
Vinyl chloride	930	8,400	0.50 U	0.50 U	**0.52**	**0.54**	0.26 J	**0.84**	**1.3**	0.27 J

	EPA SWSV		Background		PSP06	PSP07	PSP08	PSP09	PSP22
	Freshwater		PSP31	PSP32					
Analyte	Chronic	Acute	PSP31-SW	PSP32-SW	PSP06-SW	PSP07-SW	PSP08-SW	PSP09-SW	PSP22-SEEP
Chlorinated Volatile Organic Compounds (µg/L)									
1,1-Dichloroethene	130	1,200	0.50 U	0.50 U	**6.9**	**7.4**	**28**	**24**	0.25 J
cis-1,2-Dichloroethene	620	5,500	0.50 U	0.50 U	**6.0**	**6.6**	**17**	**15**	**2.8**
Tetrachloroethene	53	430	0.50 U	0.50 U	**6.6**	**7.5**	**44**	**36**	**3.0**
trans-1,2-Dichloroethene	558	10,046	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	220	2,000	0.50 U	0.50 U	**6.2**	**7.1**	**24**	**20**	**2.1**
Vinyl chloride	930	8,400	0.50 U	0.50 U	0.50 U	0.50 U	**1.2**	**1.1**	0.50 U

Notes:

DUP	Duplicate
EPA	U.S. Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate.
µg/L	Micrograms per liter
PSP	Patterson Street Solvent Plume
SW	Surface water
SWSV	2018 Surface Water Screening Value
U	Analyte not detected at concentration at or above reporting limit.
BOLD	Bolded values are elevated, meaning that the values are three times the concentration of detected constituents in the background sample or greater than or equal to the non-detect concentration in the background sample.

TABLE 4
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR SURFACE SOIL SAMPLES

Analyte	EPA RSL Residential	PSP10	PSP11		PSP12	PSP13
		PSP10-SF	PSP11-SF	PSP11-SF-DUP	PSP12-SF	PSP13-SF
Chlorinated Volatile Organic Compounds (µg/kg)						
1,1-Dichloroethene	230	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U
cis-1,2-Dichloroethene	160	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U
Tetrachloroethene	24	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U
trans-1,2-Dichloroethene	1,600	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U
Trichloroethene	0.94	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U
Vinyl chloride	0.059	0.79 UJ	0.92 U	0.85 U	0.80 U	0.87 U

Notes:

DUP	Duplicate
EPA	U.S. Environmental Protection Agency
µg/kg	Micrograms per kilogram
PSP	Patterson Street Solvent Plume
RSL	November 2019 Regional Screening Level (Target Risk=1E-06, Hazard Quotient=1.0) for residential soil
SF	Surface soil
U	Analyte not detected at concentration at or above reporting limit.
UJ	Analyte not detected at concentration at or above reporting limit, which is considered approximate due to deficiencies in one or more quality control criteria.

TABLE 5
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR CRAWL SPACE AIR AND INDOOR AIR SAMPLES

Analyte	EPA RSL Residential	Background PSP25 PSP25-AA	PSP14 Crawl Space PSP14-CS	PSP14 Indoor Air PSP14-IA	PSP20 Crawl Space PSP20-CS	PSP20 Indoor Air PSP20-IA
Chlorinated Volatile Organic Compounds (µg/m^3)						
1,1-Dichloroethene	210	0.12 J	0.35	**0.41**	0.29	**0.36**
cis-1,2-Dichloroethene	NE	0.20 U	0.11 J	0.15 J	0.15 J	0.17 J
Tetrachloroethene	11	0.24 J	**1.6**	**1.1**	**2.8**	**1.6**
trans-1,2-Dichloroethene	NE	0.20 U	0.21 U	0.23 U	0.21 U	0.22 U
Trichloroethene	0.48	0.18 J	**0.98**	**0.93**	0.34	0.38
Vinyl chloride	0.17	0.13 U	0.14 U	0.15 U	0.14 U	0.14 U

Analyte	EPA RSL Residential	Background PSP25 PSP25-AA	PSP25 Crawl Space PSP25-CS	PSP26 Crawl Space PSP26-CS	PSP29 Crawl Space PSP29-CS	PSP30 Crawl Space PSP30-CS
Chlorinated Volatile Organic Compounds (µg/m^3)						
1,1-Dichloroethene	210	0.12 J	0.23 J	**0.36**	**2.8**	0.23
cis-1,2-Dichloroethene	NE	0.20 U	0.22 U	0.11 J	0.095 J	0.20 U
Tetrachloroethene	11	0.24 J	0.68	**0.81**	**1.8**	0.51
trans-1,2-Dichloroethene	NE	0.20 U	0.084 J	0.21 U	0.11 J	0.20 U
Trichloroethene	0.48	0.18 J	0.25 J	**0.68**	**1.1**	0.44
Vinyl chloride	0.17	0.13 U	0.14 U	0.14 U	0.14 U	0.13 U

Notes:

AA	Ambient air
CS	Crawl space air
EPA	U.S. Environmental Protection Agency
IA	Indoor air
J	The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3	Micrograms per cubic meter
NE	Not established
PSP	Patterson Street Solvent Plume
RSL	November 2019 Regional Screening Level (Target Risk=1E-06, Hazard Quotient=1.0) for residential air
U	Analyte not detected at concentration at or above reporting limit.
BOLD	Bolded values are elevated, meaning that the values are three times the concentration of detected constituents in the background sample or greater than or equal to the non-detect concentration in the background sample.
	Shaded values exceed the EPA RSL for residential air.
BOLD	Bolded and shaded values are elevated and equal or exceed the EPA RSL for residential air.

TABLE 6
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR SOIL GAS SAMPLES

Analyte	EPA VISL	PSP10	PSP11	PSP12	PSP13		PSP14	PSP15	PSP16
		PSP10-SG	PSP11-SG	PSP12-SG	PSP13-SG	PSP13-SG-SPLIT	PSP14-SG	PSP15-SG	PSP16-SG
Chlorinated Volatile Organic Compounds (µg/m^3)									
1,1-Dichloroethene	6,950	0.13 J	0.31	0.21 U	0.39	0.39	700	1.2 U	3.0
cis-1,2-Dichloroethene	NE	0.20 U	0.12 J	0.19 U	0.097 J	0.13 J	740	0.20 U	0.21 U
Tetrachloroethene	360	2.1	1.0	9.5	0.64	0.66	3,600	3.5	190
trans-1,2-Dichloroethene	NE	0.20 U	0.20 U	0.19 U	0.22 U	0.22 U	11	0.20 U	0.21 U
Trichloroethene	15.9	0.64	0.36	0.26 U	0.33	0.36	3,300	0.37	0.42
Vinyl chloride	5.59	0.13 U	0.13 U	0.13 U	0.14 U	0.14 U	35	0.72	12

Analyte	EPA VISL	PSP19	PSP20	PSP21	PSP24	PSP25	PSP27	PSP28
		PSP19-SG	PSP20-SG	PSP21-SG	PSP24-SG	PSP25-SG	PSP27-SG	PSP28-SG
Chlorinated Volatile Organic Compounds (µg/m^3)								
1,1-Dichloroethene	6,950	3.6 U	150	0.14 J	0.23 U	11	32	1.1
cis-1,2-Dichloroethene	NE	0.23 U	17	0.20 U	0.22 U	1.9 J	0.21 U	0.21 U
Tetrachloroethene	360	3.8	340	7.4	0.96	1,200	21	6.0
trans-1,2-Dichloroethene	NE	0.23 U	4.5	0.20 U	0.22 U	0.46 J	0.21 U	0.21 U
Trichloroethene	15.9	1.1	330	0.25 J	0.27 J	19	3.1	0.33
Vinyl chloride	5.59	4.1	3.1	0.59	0.14 U	0.14 UJ	0.13 U	0.17

Notes:

EPA	U.S. Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3	Micrograms per cubic meter
NE	Not established
PSP	Patterson Street Solvent Plume
SG	Soil gas
U	Analyte not detected at concentration at or above reporting limit.
UJ	Analyte not detected at concentration at or above reporting limit, which is considered approximate due to deficiencies in one or more quality control criteria.
VISL	EPA Vapor Intrusion Screening Levels for target sub-slab and near-source soil gas for residential properties (Target Risk=1E-6, Target Hazard Quotient=1.0)
	Shaded values exceed the EPA VISL.

TABLE 7
PATTERSON STREET SOLVENT PLUME SI
ANALYTICAL RESULTS FOR AMBIENT AIR SAMPLES

SEPTEMBER 2019 SAMPLING EVENT											
		Background	PSP10		PSP11	PSP12	PSP13	PSP16	PSP21	PSP26	PSP28
Analyte	EPA RSL Residential	PSP24 PSP24-AA	PSP10-AA	PSP10-AA-DUP	PSP11-AA	PSP12-AA	PSP13-AA	PSP16-AA	PSP21-AA	PSP26-AA	PSP28-AA
Chlorinated Volatile Organic Compounds (µg/m^3)											
1,1-Dichloroethene	210	0.27	0.55	0.54	0.20 J	**1.0**	0.34	0.23 U	0.56	0.60	**3.7**
cis-1,2-Dichloroethene	NE	0.16 J	0.36	0.34	0.13 J	**0.59**	0.20 J	0.21 U	0.40	0.22	**2.1**
Tetrachloroethene	11	0.86	0.90 J	1.2 J	0.38	1.5	0.67	0.21 J	**3.1**	0.65	**6.6**
trans-1,2-Dichloroethene	NE	0.21 U	0.21 U	**0.40**	0.22 U	0.21 U	0.22 U	0.21 U	0.22 U	0.21 U	0.22 U
Trichloroethene	0.48	0.31	0.63	0.66	0.21 J	0.92	0.35	0.099 J	**1.2**	0.52	**3.3**
Vinyl chloride	0.17	0.13 U	0.14 U	0.14 U	0.14 U	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	**0.16**

DECEMBER 2019 SAMPLING EVENT							
		Background	PSP14	PSP20		PSP22	PSP29
Analyte	EPA RSL Residential	PSP25 PSP25-AA	PSP14-AA	PSP20-AA	PSP20-AA-DUP	PSP22-AA	PSP29-AA
Chlorinated Volatile Organic Compounds (µg/m^3)							
1,1-Dichloroethene	210	0.12 J	0.33	0.25	0.25	0.35	0.20 J
cis-1,2-Dichloroethene	NE	0.20 U	0.11 J	0.16 J	0.12 J	0.15 J	0.22 U
Tetrachloroethene	11	0.24 J	**0.95**	**0.77**	**0.79**	**0.99**	0.46
trans-1,2-Dichloroethene	NE	0.20 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U
Trichloroethene	0.48	0.18 J	**0.83**	0.38	0.35	**0.96**	0.39
Vinyl chloride	0.17	0.13 U	0.13 U	0.14 U	0.14 U	0.13 U	0.14 U

Notes:

AA	Ambient air
DUP	Duplicate
EPA	U.S. Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate.
µg/m^3	Micrograms per cubic meter
NE	Not established
PSP	Patterson Street Solvent Plume
RSL	November 2019 Regional Screening Level (Target Risk=1E-06, Hazard Quotient=1.0) for residential air
U	Analyte not detected at concentration at or above reporting limit.
BOLD	Bolded values are elevated, meaning that the values are three times the concentration of detected constituents in the background sample or greater than or equal to the non-detect concentration in the background sample.
	Shaded values exceed the EPA RSL for residential air.
BOLD	Bolded and shaded values are elevated and equal or exceed the EPA RSL for residential air.

APPENDIX C

FIELD LOGBOOK NOTES, FIELD SHEETS, AND BORING LOGS

(108 Pages)

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LOGBOOK 1

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CONTENTS

PAGE	REFERENCE	DATE

2 9/9/19 Patterson L. Shaver

0700 START Kelley, Shaver, and Falkner mob to site

0700 START arrives on site

START Snyder on site with GPR @ 0930 also NCDEQ on site

1300 - START Kelley, Shaver, and Falkner arrive at site. Meet with START Snyder.

1400 - Set up ambient air cannisters for deployment.

1430 - Deployed ambient air cannisters at seven locations (see field sheet for additional details).

1500 - Use thermal imaging camera to locate groundwater seeps.

1530 - Meet with EPA Cathy Amoroso.

1630 - check ambient air cannisters

1700 - START done for day. ~~and~~ AF

Amber Falkner
09-09-2019

Scale: 1 square = _____

09-10-2019 3

0745 - START Snyder, Kelley, Shaver, and Falkner arrive at site.

Weather - 88°/68° cloudy. 10% chance of rain. wind: SSE at 5 mph.

0750 - check on ambient air cannisters.

Note - Yesterday's wind: 5 mph ENE.
Today's wind: 4 mph E.

0800 START Meets EPA & NCDEQ to discuss today's activities. NCDEQ will continue to canvas for access. The drillers won't arrive until tomorrow; therefore, START will collect the SW samples along the unnamed creek & deploy the last AA samples.

0830 START Snyder & EPA will scout the interior (west) branch of the creek while START Kelley, Shaver, & Falkner collect SW samples along the main (east) branch of the unnamed creek. See field forms for sample details.

1330 START deploys AA samples. See field forms.

1530 START processes samples.

1630 START done for the day.

Dan Kelley 9/10/19

Scale: 1 square = _____

9/11/19

0745 START arrives at the Site. Conducts H&S briefing. Meets driller.

0815 START calibrates the Horiba water quality meter.

0830 START & Cascade set up at PSP24 to collect GW & SG. See the field forms for sample details.

0850 Drill to ~6.5 feet bgs at PSP24 before refusal. Set well at 6.5 ft. Will let sit & sample later.

0920 Driller sets up at PSP13.

0930 START Collects surface soil sample PSP13-SF from 0 to 1 ft bgs. Set well at 10 ft bgs. Will let sit & sample later.

0950 Driller sets up at PSP21.

See boring logs & field forms for details.

1020 - Driller sets up at PSP20 to set SG implant. Set at 5.5 - 6.0 ft bgs.

1048 - Driller sets up at PSP12. Drill well to ~10 ft before refusal. Well set at 5 ft bgs. SG implant installed at 2-3 ft bgs.

1118 - Drillers set up at PSP11. Drilled to 7ft bgs before refusal. Well set at 2 - 7 ft bgs. No SG implant, soil saturated at 3 ft bgs. amberfelt 9/11/19

1135 - Second hole at PSP11 for SF duplicate.

1145 - Drillers set up at PSP10 for SF, SG, + GW. Well depth is ~10 ft bgs. SG implant will be installed after well abandoned.

1350 - Drillers set up at PSP18. SG implant set at 9 ft bgs.

1415 - Drillers set up at PSP16. SG implant not installed because 15ft of clay bgs. PSP22 SG implant abandoned due to same clay backfill at PSP16.

1510 - Drillers set up at PSP25. Well bottom at 10ft bgs. SG implant at 2 ft bgs. Well moved from PSP26 to PSP25. Drillers set up at PSP26. ~~Well~~ AF Refusal at 8 ft bgs. SG implant installed at 8 ft bgs.

Late entry - 2nd team to collect ambient air & groundwater samples

PSP-24, 1520, well purged dry, no collection

PSP-12, sample collection @ 1621 (groundwater)

PSP-11, well dry @ 1630

PSP-10, sample collected @ 1648

to hotel to process samples, other team to soil gas collection. Soil gas collection aborted. End of day @ 1900

9/11/19

09-12-2019

0745 - START arrives at site. Conducts H+S meeting.

0800 - Cascade and START set up at PSP17.

0815 - START Shaver + Falkner arrive at PSP13 to collect groundwater samples. NF Well was dry.

0820 - START Shaver + Falkner arrive at PSP 24 to collect groundwater samples. Well was dry.

0825 - START Shaver + Falkner arrive at PSP25 to collect groundwater samples.

Lead Entry (2nd team)

0800 drill @ PSP17
soil core @ 0818, refusal @ 13.5ft BGS
temp. well set @ 13.5ft, 10ft screen

0837 drill @ PSP14 refusal @ 7.5ft BGS
soil gas implant set @ 7ft BGS

0910 drill @ PSP19, soil gas implant set @ 7ft BGS

0930 drill @ PSP15, soil gas implant set @ 7ft BGS

L. Shaver 9/12/19

Scale: 1 square = _____

C-5

9/12/19 L. Shaver

1025 drill @ PSP27, temp. well set @ 20ft BGS with 10ft screen
Soil gas implant set between 9 and 10ft BGS

1115 drill @ PSP28, temp. well set @ 24ft BGS w/ 10ft screen
Soil gas implant set btw 6 & 7ft BGS

1300 drill @ PSP-23, well set @ 7ft BGS, 5ft screen

Lead Entry team 1 (soil gas) = START Snyder & Falkner

1107 collection @ PSP-21, ~~start~~ see field sheet for details

1202 collection for soil gas for PSP15

1249 collection for soil gas for PSP19

Groundwater sample collection team 2
START Shaver and Kelley

1310 team 2 @ PSP-24 for groundwater see field sheet for details
Duplicate collected

1400 team 2 to PSP-17, see field sheet for groundwater collection details

1430 team 2 to PSP11, see field sheet for details

1500 team 2 to PSP-13, see field sheet for details.

Scale: 1 square = _____

Rite in the Rain

8 9/12/19

Late entry by team 1 for soil gas collection, START Snyder & Faulkner Falkner
See field sheets for details
PSP 14 collection @ 1329
PSP 24 collection @ 1428
PSP 20 collection @ 1523

1600 START Kelley and Falkner to process samples, START Shaver & Snyder to continue soil gas collection
PSP-16 collected at 1627
PSP-10 collected @ 1721
PSP-11 collected @ 1811
see field sheets for details

Late entry: Drillers finished and are off-site

9/12/19

Scale: 1 square = _____

9 9/13/19

0630 START onsite, H&S meeting
Soil gas collection; see field sheets for details:

Sample	collection start time
PSP 28	0702
PSP 27	0747
PSP 13	0822 & split
PSP 24	0950
PSP 12	1032

9/13/19

Scale: 1 square = _____

Rite in the Rain

12/3/2019

0730- START Kelley, Snyder and Falkner meet at site.

Note: Today's weather: 49° and partly cloudy. 5% chance precipitation. Wind 3-10mph W.

0745- START set up ambient air, crawl space air, and indoor air cannisters.

0830- Deployed 1A, AA, and CS air cannisters at PSP20.

*~~0900~~ 0907 - START collect surface water samples at PSP32.

0920- START collect surface water samples at PSP31.

1020- Deployed AA, 1A, and CS air cannisters at PSP14.

1025- Deployed AA air cannister at PSP22.

1100- Deployed AA and CS air cannisters and CS air cannisters at PSP25 and PSP30, respectively.

1330- Deployed CS air cannister at PSP26.

1400- Characterize creek directly below Patterson Street. Used tracer dye to

Scale: 1 square = _____

Amber Falkner 12-3-2019

confirm sewer pipe flows into same creek samples were collected from. Tracer dye confirmed sewer pipe found between Patterson Street and Immanuel Road is connected to sample stream.

1415- START Kelley, Snyder, and Falkner off-site.

1830- START Kelley, Snyder, and Falkner on-site.

1840- Deployed AA and CS at PSP29.

1845- START Kelley, Snyder, and Falkner off-site.

Note- Could not deploy 1A air cannister at PSP29 due to homeowner not home.

Amber Falkner
12-3-2019

Scale: 1 square = _____

Rite in the Rain

12/4/19

0800 START arrives at 1402 Swan St to pick up 1A, CS, & AA PSP20 canisters.

1000 START arrives at 2822 Camborne St to pick up PSP14-AA, CS, 1A canisters. START also picks up PSP22-AA Canister.

1100 START arrives at 2841 Camborne St to pick up PSP25-CS & AA canisters. START also picks up PSP30-CS from 2834 Camborne St.

1300 START arrives at 2836 Camborne St to pick up PSP26-CS ~~& AA~~ (QK) canisters.

1615 ~~1815~~ START arrives at 2832 Camborne St to pick up PSP29-CS & AA canisters.

1840 - START demobilizes from the site.

Quin Kelly 12/4/19

Scale: 1 square = _____

Scale: 1 square = _____

Rite in the Rain

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP10 **Sample Date:** Sep 11, 2019

Sample ID: PSP10-GW **Well No.:**

Sample Time: 16:48 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 10.12 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 8.41 ft
Water Column: 1.71 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)			
Water Level (ft)			
pH (std. Units)	6.28		
Sp. Conductivity (uS/cm)	0.426		
Temperature (°F)	30.44		
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP11 **Sample Date:** Sep 12, 2019

Sample ID: PSP11-GW **Well No.:**

Sample Time: 14:50 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 6.64 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 5.12 ft
Water Column: 1.52 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)			
Water Level (ft)			
pH (std. Units)			
Sp. Conductivity (uS/cm)			
Temperature (°F)			
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP12 **Sample Date:** Sep 11, 2019

Sample ID: PSP12-GW **Well No.:**

Sample Time: 16:21 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 9.86 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 8.51 ft
Water Column: 1.35 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)	16:12		
Water Level (ft)			
pH (std. Units)	5.84		
Sp. Conductivity (uS/cm)	0.272		
Temperature (°F)	28.74		
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP13 **Sample Date:** Sep 12, 2019

Sample ID: PSP13-GW **Well No.:**

Sample Time: 15:15 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 20.08 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 16.96 ft
Water Column: 3.12 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)	15:21		
Water Level (ft)			
pH (std. Units)	7		
Sp. Conductivity (uS/cm)	0.288		
Temperature (°F)	28.54		
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP17 **Sample Date:** Sep 12, 2019

Sample ID: PSP17-GW **Well No.:**

Sample Time: 14:15 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 13.56 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 6.19 ft
Water Column: 7.37 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)	14:18		
Water Level (ft)			
pH (std. Units)	6.99		
Sp. Conductivity (uS/cm)	0.373		
Temperature (°F)	28.5		
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP24 **Sample Date:** Sep 12, 2019

Sample ID: PSP24-GW **Well No.:**

Sample Time: 13:35 **Collected by:** Leslie Shaver

Quality Control:

☐ MS/MSD ☒ Duplicate Duplicate ID: PSP24-GW-DUP Time: 13:37

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	6	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 6.3 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 4.9 ft
Water Column: 1.4 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)			
Water Level (ft)			
pH (std. Units)			
Sp. Conductivity (uS/cm)			
Temperature (°F)			
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
GROUNDWATER SAMPLE COLLECTION FORM

Station ID: PSP25 **Sample Date:** Sep 12, 2019

Sample ID: PSP25-GW **Well No.:**

Sample Time: 09:35 **Collected by:** Amber Falkner

Quality Control:

☒ MS/MSD ☐ Duplicate Duplicate ID: Time:

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	9	40-mL vials with HCl

Type of Well: Temp (PVC)
Total Depth of Well: 10.12 bgs
Screen Interval: 5 - 10 ft
Depth to Water: 5.59 ft
Water Column: 4.53 ft
Well Diameter: 1 in

1-inch well = water column (ft) x 0.041 gal/ft
2-inch well = water column (ft) x 0.163 gal/ft
3-inch well = water column (ft) x 0.367 gal/ft
4-inch well = water column (ft) x 0.653 gal/ft

Water Quality Parameter Measurements			
Parameter	**1**	**2**	**3**
Time (24 hr)			
Water Level (ft)			
pH (std. Units)	5.11		
Sp. Conductivity (uS/cm)	0.12		
Temperature (°F)	27.04		
Turbidity (NTU)			

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP01	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Leslie Shaver
Sample ID:	PSP01-SW	**Sample Time:**	09:43

Quality Control: ☐ MS/MSD ☒ Duplicate Time: 09:45

ID: PSP01-SW-DUP

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	6	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP02	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Leslie Shaver
Sample ID:	PSP02-SW	**Sample Time:**	09:26

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP03	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Amber Falkner
Sample ID:	PSP03-SW	**Sample Time:**	09:18

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP04	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Leslie Shaver
Sample ID:	PSP04-SW	**Sample Time:**	09:10

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP05	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	John Snyder
Sample ID:	PSP05-SW	**Sample Time:**	10:40

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP06	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Amber Falkner
Sample ID:	PSP06-SW	**Sample Time:**	10:53

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP07	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	John Snyder
Sample ID:	PSP07-SW	**Sample Time:**	11:00

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP08	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Amber Falkner
Sample ID:	PSP08-SW	**Sample Time:**	09:00

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP09	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Leslie Shaver
Sample ID:	PSP09-SW	**Sample Time:**	08:41

Quality Control: ☒ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	9	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE WATER SAMPLE COLLECTION FORM

Station ID:	PSP22	**Sample Date:**	Sep 10, 2019
Depth Interval:	NA	**Sampler:**	Leslie Shaver
Sample ID:	PSP22-SEEP	**Sample Time:**	11:12

Quality Control: ☐ MS/MSD ☐ Duplicate Time: _____

ID: _____

	Analysis	No.	Container
☒	Trace Chlorinated VOCs	3	40-mL vials with HCl

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE SOIL SAMPLE COLLECTION FORM

Station ID: PSP10 **Sample Date:** Sep 11, 2019

Latitude: 36.05458 **Longitude:** -79.84054

Sample ID: PSP10-SF **Sampler:** Leslie Shaver

Depth Interval: 0-6 inches **Sample Time:** 11:55

Quality Control:

☐ MS/MSD ☐ Duplicate Sample ID: _____ Time: _____

	Analysis	No.	Container
☒	Chlorinated VOCs	1	Terracore Kit (Three 40-mL glass vials and one 2-oz glass jar)

Physical Description and Observations:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE SOIL SAMPLE COLLECTION FORM

Station ID: PSP11 **Sample Date:** Sep 11, 2019

Latitude: 36.05429 **Longitude:** -79.84012

Sample ID: PSP11-SF **Sampler:** Leslie Shaver

Depth Interval: 0-6 inches **Sample Time:** 11:35

Quality Control:

☐ MS/MSD ☒ Duplicate Sample ID: PSP11-SF-DUP Time: 11:40

	Analysis	No.	Container
☒	Chlorinated VOCs	2	Terracore Kits (Three 40-mL glass vials and one 2-oz glass jar)

Physical Description and Observations:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE SOIL SAMPLE COLLECTION FORM

Station ID: PSP12 **Sample Date:** Sep 11, 2019

Latitude: 36.0539 **Longitude:** -79.84002

Sample ID: PSP12-SF **Sampler:** Leslie Shaver

Depth Interval: 0-6 inches **Sample Time:** 10:55

Quality Control:

☐ MS/MSD ☐ Duplicate Sample ID: _____ Time: _____

	Analysis	No.	Container
☒	Chlorinated VOCs	1	Terracore Kit (Three 40-mL glass vials and one 2-oz glass jar)

Physical Description and Observations:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SURFACE SOIL SAMPLE COLLECTION FORM

Station ID: PSP13 **Sample Date:** Sep 11, 2019

Latitude: 36.05357 **Longitude:** -79.83951

Sample ID: PSP13-SS- **Sampler:** Leslie Shaver

Depth Interval: 0-1 foot **Sample Time:** 09:30

Quality Control:

☒ MS/MSD ☐ Duplicate Sample ID: _____ Time: _____

	Analysis	No.	Container
☒	Chlorinated VOCs	3	Terracore Kits (Three 40-mL glass vials and one 2-oz glass jar)

Physical Description and Observations:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP10	**Sample ID:**	PSP10-SG
Latitude:	36.05458	**Longitude:**	-79.84054
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	1.5-2 feet
Sand/Glass Beads:	1-2 feet	**Bentonite:**	0-1, 2-10 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	17:15 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	70%	**Implant Conc.:**	0 ppm

Container ID:	14674	**Container:**	6L Canister
Regulator ID:	SGC-54	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	17:21	**Time:**	17:52
Pressure:	-30	**Pressure:**	-3

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP11	**Sample ID:**	PSP11-SG
Latitude:	36.05429	**Longitude:**	-79.84011
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	15 feet	**Screened Depth:**	3.5-4 feet
Sand/Glass Beads:	3-4.5 feet	**Bentonite:**	0-, 4.5-15 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	18:02 / Sep 11, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	47%	**Implant Conc.:**	250 ppm

Container ID:	4017	**Container:**	6L Canister
Regulator ID:	SGC-35	**Setting:**	200 mL/min

Split Sample ID: _____ **Split Container ID:** _____

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	18:11	**Time:**	18:38
Pressure:	-30	**Pressure:**	-3

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP12	**Sample ID:**	PSP12-SG
Latitude:	36.0539	**Longitude:**	-79.84002
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	2.5-3 feet
Sand/Glass Beads:	2-3.5 feet	**Bentonite:**	0-2, 3.5-10 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	10:25 / Sep 13, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	94%	**Implant Conc.:**	0 ppm

Container ID:	3910	**Container:**	6L Canister
Regulator ID:	SGC-63	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 13, 2019	**Date:**	Sep 13, 2019
Time:	10:32	**Time:**	11:00
Pressure:	-30	**Pressure:**	-2

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP13	**Sample ID:**	PSP13-SG
Latitude:	36.05357	**Longitude:**	-79.83951
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	20 feet	**Screened Depth:**	5.5-6.0 feet
Sand/Glass Beads:	5-6.5 feet	**Bentonite:**	0-5, 6.5-20 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	08:23 / Sep 13, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	97%	**Implant Conc.:**	0 ppm

Container ID:	20982	**Container:**	6L Canister
Regulator ID:	SGC-58	**Setting:**	200 mL/min

Split Sample ID:	PSP13-SG-SPLIT	**Split Container ID:**	4554

START		**END**	
Date:	Sep 13, 2019	**Date:**	Sep 13, 2019
Time:	08:22	**Time:**	09:30
Pressure:	-29	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP14	**Sample ID:**	PSP14-SG
Latitude:	36.05531	**Longitude:**	-79.84011
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	7.5 feet	**Screened Depth:**	7-7.5 feet
Sand/Glass Beads:	6-7.5 feet	**Bentonite:**	0-6 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	13:20 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	80%	**Implant Conc.:**	1.8%

Container ID:	2785	**Container:**	6L Canister
Regulator ID:	SGC-46	**Setting:**	200 mL/min

Split Sample ID: _____ **Split Container ID:** _____

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	13:29	**Time:**	13:56
Pressure:	-28	**Pressure:**	-2

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP15	**Sample ID:**	PSP15-SG
Latitude:	36.05497	**Longitude:**	-79.83878
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	6.5-7 feet
Sand/Glass Beads:	6-7.5 feet	**Bentonite:**	7.5-10, 0-6 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	11:55 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	95%	**Implant Conc.:**	2100 ppm

Container ID:	27825	**Container:**	6L Canister
Regulator ID:	SGC-51	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	12:04	**Time:**	12:28
Pressure:	-30	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP16	**Sample ID:**	PSP16-SG
Latitude:	36.05465	**Longitude:**	-79.84152
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	15 feet	**Screened Depth:**	14.5-15 feet
Sand/Glass Beads:	14-15 feet	**Bentonite:**	0-14 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	16:24 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	38.6%	**Implant Conc.:**	1.7%

Container ID:	27822	**Container:**	6L Canister
Regulator ID:	SGC-56	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	16:27	**Time:**	16:56
Pressure:	-30	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP17	**Sample ID:**	PSP17-SG
Latitude:	36.05482	**Longitude:**	-79.8409
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	13.5 feet	**Screened Depth:**	6.5-7 feet
Sand/Glass Beads:	6.0-7.5 feet	**Bentonite:**	0-6, 7.5-13.5 feet

Leak Test?		**Pass/Fail?**	
Test Time/Date:		**Tracer Gas:**	
Gas Detector:		**Pump Type:**	
Shroud Conc.:		**Implant Conc.:**	

Container ID:		**Container:**	
Regulator ID:		**Setting:**	

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:		**Date:**	
Time:		**Time:**	
Pressure:		**Pressure:**	

Comments: Could not even purge 60 mL from implant; mudded in; not a viable impant

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP18	**Sample ID:**	PSP18-SG
Latitude:	36.0545	**Longitude:**	-79.83976
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	8.5-9.0 feet
Sand/Glass Beads:	8-9.5 feet	**Bentonite:**	0-8, 9.5-10 feet

Leak Test?		**Pass/Fail?**	
Test Time/Date:		**Tracer Gas:**	
Gas Detector:		**Pump Type:**	
Shroud Conc.:		**Implant Conc.:**	

Container ID:		**Container:**	
Regulator ID:		**Setting:**	

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:		**Date:**	
Time:		**Time:**	
Pressure:		**Pressure:**	

Comments: Pulled water on implant pull; mud appeared on tubing up to 3' bgs; not a viable location

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP19	**Sample ID:**	PSP19-SG
Latitude:	36.05487	**Longitude:**	-79.83946
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	6.5-7 feet
Sand/Glass Beads:	6-7.5 feet	**Bentonite:**	7.5-10, 0-6 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	12:45 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	94%	**Implant Conc.:**	0.5%

Container ID:	2418	**Container:**	6L Canister
Regulator ID:	SGC-49	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	12:49	**Time:**	13:11
Pressure:	-28	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP20	**Sample ID:**	PSP20-SG
Latitude:	36.05418	**Longitude:**	-79.83923
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	5.5-6.0 feet
Sand/Glass Beads:	5.0-6.5 feet	**Bentonite:**	0-5, 6.5-10 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	15:17 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	96%	**Implant Conc.:**	1.8%

Container ID:	3588	**Container:**	6L Canister
Regulator ID:	SGC-55	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	15:23	**Time:**	15:53
Pressure:	-28	**Pressure:**	-2

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP21	**Sample ID:**	PSP21-SG
Latitude:	36.0545	**Longitude:**	-79.8384
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	3 feet	**Screened Depth:**	2.5-3 feet
Sand/Glass Beads:	2-3 feet	**Bentonite:**	0-2 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	Sep 11, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	98%	**Implant Conc.:**	0%

Container ID:	571	**Container:**	6L Canister
Regulator ID:	SGC-48	**Setting:**	30 min

Split Sample ID: _____ **Split Container ID:** _____

START		**END**	
Date:	Sep 11, 2019	**Date:**	Sep 11, 2019
Time:	11:07	**Time:**	11:35
Pressure:	-28	**Pressure:**	-2

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP24	**Sample ID:**	PSP24-SG
Latitude:	36.05298	**Longitude:**	-79.83845
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	6.5 feet	**Screened Depth:**	2.5-3 feet
Sand/Glass Beads:	2-3 feet	**Bentonite:**	0-2, 3-6.5 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	09:45 / Sep 13, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	98%	**Implant Conc.:**	0 ppm

Container ID:	4555	**Container:**	6L Canister
Regulator ID:	SGC-30	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 13, 2019	**Date:**	Sep 13, 2019
Time:	09:50	**Time:**	10:16
Pressure:	-28	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP25	**Sample ID:**	PSP25-SG
Latitude:	36.0551	**Longitude:**	-79.84169
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	10 feet	**Screened Depth:**	1.5-2 feet
Sand/Glass Beads:	1-2 feet	**Bentonite:**	0-1, 2-10 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	14:16 / Sep 12, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	92.5%	**Implant Conc.:**	250 ppm

Container ID:	4671	**Container:**	6L Canister
Regulator ID:	SGC-57	**Setting:**	200 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 12, 2019	**Date:**	Sep 12, 2019
Time:	14:28	**Time:**	14:55
Pressure:	-30	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP26	**Sample ID:**	PSP26-SG
Latitude:	36.05551	**Longitude:**	-79.84147
Sampler:	John Snyder		

Implant Install Date:	Sep 11, 2019	**Tubing Type:**	Teflon
Total Depth:	8 feet	**Screened Depth:**	7.5-8 feet
Sand/Glass Beads:	7-8 feet	**Bentonite:**	0-7 feet

Leak Test?	No	**Pass/Fail?**	
Test Time/Date:		**Tracer Gas:**	
Gas Detector:		**Pump Type:**	
Shroud Conc.:		**Implant Conc.:**	

Container ID:		**Container:**	
Regulator ID:		**Setting:**	

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:		**Date:**	
Time:		**Time:**	
Pressure:		**Pressure:**	

Comments: Implant not producing soil gas: non-viable; applied vacuum to implant with syringe; no flow

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP27	**Sample ID:**	PSP27-SG
Latitude:	36.05375	**Longitude:**	-79.84008
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	20 feet	**Screened Depth:**	9.5-10 feet
Sand/Glass Beads:	9-10.5 feet	**Bentonite:**	0-9, 10.5-20 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	07:40 / Sep 13, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	94%	**Implant Conc.:**	0 ppm

Container ID:	3928	**Container:**	6L Canister
Regulator ID:	SGC-28	**Setting:**	20 mL/min

Split Sample ID:		**Split Container ID:**	

START		**END**	
Date:	Sep 13, 2019	**Date:**	Sep 13, 2019
Time:	07:46	**Time:**	08:11
Pressure:	-29	**Pressure:**	-4

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
SOIL GAS SAMPLE COLLECTION FORM

Station ID:	PSP28	**Sample ID:**	PSP28-SG
Latitude:	36.05378	**Longitude:**	-79.84123
Sampler:	John Snyder		

Implant Install Date:	Sep 12, 2019	**Tubing Type:**	Teflon
Total Depth:	23.5 feet	**Screened Depth:**	6.5-7 feet
Sand/Glass Beads:	6-7.5 feet	**Bentonite:**	0-6, 7.5-23.5 feet

Leak Test?	Yes	**Pass/Fail?**	Pass
Test Time/Date:	06:55 / Sep 13, 2019	**Tracer Gas:**	Helium
Gas Detector:	Radiodetector	**Pump Type:**	Syringe
Shroud Conc.:	94%	**Implant Conc.:**	0 ppm

Container ID:	4670	**Container:**	6L Canister
Regulator ID:	SGC-31	**Setting:**	200 mL/min

Split Sample ID: _____ **Split Container ID:** _____

START		**END**	
Date:	Sep 13, 2019	**Date:**	Sep 13, 2019
Time:	07:02	**Time:**	07:26
Pressure:	-29	**Pressure:**	-1

Comments:

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
INDOOR AIR SAMPLE COLLECTION FORM

Station ID:	PSP14	**Sample ID:**	PSP14-IA
Latitude:	36.05531	**Longitude:**	-79.84011

Container ID:	27709	**Container:**	6-L Summa
Regulator ID:	FC-47	**Regulator Setting:**	24hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	10:17	**Time:**	10:02
Pressure:	-28	**Pressure:**	-7

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
INDOOR AIR SAMPLE COLLECTION FORM

Station ID:	PSP20	**Sample ID:**	PSP20-IA
Latitude:	36.05417	**Longitude:**	-79.83924

Container ID:	27713	**Container:**	6-L Summa
Regulator ID:	FC-30	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	08:34	**Time:**	08:00
Pressure:	-29	**Pressure:**	-5

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP14	**Sample ID:**	PSP14-CS
Latitude:	36.05532	**Longitude:**	-79.84011

Container ID:	27827	**Container:**	6-L Summa
Regulator ID:	FC-41	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	10:20	**Time:**	10:03
Pressure:	-30	**Pressure:**	-6.5

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP20	**Sample ID:**	PSP20-CS
Latitude:	36.05417	**Longitude:**	-79.83924

Container ID:	20715	**Container:**	6-L Summa
Regulator ID:	FC-27	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	08:41	**Time:**	08:04
Pressure:	-28	**Pressure:**	-6

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP25	**Sample ID:**	PSP25-CS
Latitude:	36.05509	**Longitude:**	-79.84169

Container ID:	27711	**Container:**	6-L Summa
Regulator ID:	FC-40	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	11:00	**Time:**	11:03
Pressure:	-30	**Pressure:**	-6

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP26	**Sample ID:**	PSP26-CS
Latitude:	36.0555	**Longitude:**	-79.84147

Container ID:	20652	**Container:**	6-L Summa
Regulator ID:	FC-43	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	13:31	**Time:**	13:03
Pressure:	-30	**Pressure:**	-5

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP29	**Sample ID:**	PSP29-CS
Latitude:	36.05528	**Longitude:**	-79.84113

Container ID:	27826	**Container:**	6-L Summa
Regulator ID:	FC-50	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	18:41	**Time:**	18:20
Pressure:	-30	**Pressure:**	-5

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
CRAWL SPACE SAMPLE COLLECTION FORM

Station ID:	PSP30	**Sample ID:**	PSP30-CS
Latitude:	36.05529	**Longitude:**	-79.84129

Container ID:	20653	**Container:**	6-L Summa
Regulator ID:	FC-48	**Regulator Setting:**	24hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	11:06	**Time:**	11:05
Pressure:	-30	**Pressure:**	-5

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP10	**Sample ID:**	PSP10-AA
Latitude:	36.05458	**Longitude:**	-79.84054
Container ID:	14675	**Container:**	6-L Summa
Regulator ID:	FC-48	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 10, 2019	**Date:**	Sep 11, 2019
Time:	13:44	**Time:**	14:42
Pressure:	-28	**Pressure:**	-5

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP10	**Sample ID:**	PSP10-AA-DUP
Latitude:	36.05458	**Longitude:**	-79.84054
Container ID:	5677	**Container:**	6-L Summa
Regulator ID:	FC-50	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 10, 2019	**Date:**	Sep 11, 2019
Time:	13:43	**Time:**	14:42
Pressure:	-30	**Pressure:**	-5

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP11	**Sample ID:**	PSP11-AA
Latitude:	36.05429	**Longitude:**	-79.84011
Container ID:	2771	**Container:**	6-L Summa
Regulator ID:	FC-49	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	14:16	**Time:**	14:06
Pressure:	-30	**Pressure:**	-5

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP12	**Sample ID:**	PSP12-AA
Latitude:	36.0539	**Longitude:**	-79.84002

Container ID:	20970	**Container:**	6-L Summa
Regulator ID:	FC-46	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	14:23	**Time:**	15:37
Pressure:	-35	**Pressure:**	-6

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP13	**Sample ID:**	PSP13-AA
Latitude:	36.05357	**Longitude:**	-79.83951
Container ID:	2782	**Container:**	6-L Summa
Regulator ID:	FC-41	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	14:38	**Time:**	15:01
Pressure:	-30	**Pressure:**	-5

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP14	**Sample ID:**	PSP14-AA
Latitude:	36.05532	**Longitude:**	-79.84012

Container ID:	27714	**Container:**	6-L Summa
Regulator ID:	FC-38	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	10:22	**Time:**	10:03
Pressure:	-30	**Pressure:**	-8

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP16	**Sample ID:**	PSP16-AA
Latitude:	36.05465	**Longitude:**	-79.84152
Container ID:	27879	**Container:**	6-L Summa
Regulator ID:	FC-38	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	14:30	**Time:**	15:36
Pressure:	-35	**Pressure:**	-7

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP20	**Sample ID:**	PSP20-AA
Latitude:	36.05416	**Longitude:**	-79.83924
Container ID:	27715	**Container:**	6-L Summa
Regulator ID:	FC-22	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	08:43	**Time:**	08:04
Pressure:	-28	**Pressure:**	-4

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP20	**Sample ID:**	PSP20-AA-DUP
Latitude:	36.05417	**Longitude:**	-79.83924
Container ID:	27816	**Container:**	6-L Summa
Regulator ID:	FC-13	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	08:43	**Time:**	08:04
Pressure:	-29	**Pressure:**	-7

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP21	**Sample ID:**	PSP21-AA
Latitude:	36.0545	**Longitude:**	-79.8384
Container ID:	5920	**Container:**	6-L Summa
Regulator ID:	FC-43	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	14:46	**Time:**	14:13
Pressure:	-30	**Pressure:**	-5

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP22	**Sample ID:**	PSP22-AA
Latitude:	36.05548	**Longitude:**	-79.84038

Container ID:	27817	**Container:**	6-L Summa
Regulator ID:	FC-45	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	10:25	**Time:**	10:05
Pressure:	-30	**Pressure:**	-6

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP24	**Sample ID:**	PSP24-AA
Latitude:	36.05298	**Longitude:**	-79.83845
Container ID:	20979	**Container:**	6-L Summa
Regulator ID:	FC-45	**Regulator Setting:**	24 hr

START		**END**	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	13:52	**Time:**	15:30
Pressure:	-35	**Pressure:**	-7

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP25	**Sample ID:**	PSP25-AA
Latitude:	36.05509	**Longitude:**	-79.8417

Container ID:	27710	**Container:**	6-L Summa
Regulator ID:	FC-42	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	11:01	**Time:**	11:04
Pressure:	-30	**Pressure:**	-3

Sampler: John Snyder

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID: PSP26 **Sample ID:** PSP26-AA

Latitude: 36.05551 **Longitude:** -79.84147

Container ID: 2781 **Container:** 6-L Summa

Regulator ID: FC-40 **Regulator Setting:** 24 hr

START		END	
Date:	Sep 10, 2019	**Date:**	Sep 11, 2019
Time:	13:50	**Time:**	14:37
Pressure:	-28	**Pressure:**	-6

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID: PSP28 **Sample ID:** PSP28-AA

Latitude: 36.05378 **Longitude:** -79.84123

Container ID: 14677 **Container:** 6-L Summa

Regulator ID: FC-47 **Regulator Setting:** 24 hr

START		END	
Date:	Sep 9, 2019	**Date:**	Sep 10, 2019
Time:	13:58	**Time:**	15:03
Pressure:	-30	**Pressure:**	-6

Sampler: Leslie Shaver

PATTERSON STREET SOLVENT PLUME SI
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA
AMBIENT AIR SAMPLE COLLECTION FORM

Station ID:	PSP29	**Sample ID:**	PSP29-AA
Latitude:	36.05528	**Longitude:**	-79.84114
Container ID:	20980	**Container:**	6-L Summa
Regulator ID:	FC-19	**Regulator Setting:**	24 hr

START		**END**	
Date:	Dec 3, 2019	**Date:**	Dec 4, 2019
Time:	18:42	**Time:**	18:21
Pressure:	-29	**Pressure:**	-6

Sampler: John Snyder

BOREHOLE LOG

Boring ID:	PSP10		
Monitoring Well ID:	PSP10		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP10		
Easting:	-79.8405	***Northing:***	36.0545845
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1145
Drill Finish Date:	9/11/2019	***Drill Finish Time***	1200
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	9/11/2019	***Well Completion Time:***	1200
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	10.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP10 **MW ID:** PSP10	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)	Sample Interval	Depth (feet bgs)	Soil Description
1145	48/60	S		Organic rich silty clay, medium brown, dry
			1	
			2	Soil gas implant (1.5-2')
			3	
			4	Course saprolitic, white, gneissic layer, pulverized quartz, dry silty clay, medium brown, dry
			5	
1150	48/60			moist, medium brown to grey sandy clay
			6	
			7	wet, medium brown to grey sandy clay
			8	
			9	wet, saporlitic, gneiss like bands, black and white
			10	End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP11		
Monitoring Well ID:	PSP11		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP11		
Easting:	-79.8401	***Northing:***	36.0543
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1115
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1140
Total Borehole Depth (feet bgs):	7		
Well Completion Date:	9/11/2019	***Well Completion Time:***	1130
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	7.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP11 **MW ID:** PSP11	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)	Sample Interval	Depth (feet bgs)	Soil Description
1118	36/60	S		Organic rich, silty clay, dark to medium brown, dry
			1	
				moist, medium brown silty clay
			2	
			3	wet, medium brown, sandy clay
			4	
			5	
1125	48/60			wet saprolitic sandy clay, tan and red mottles
			6	
			7	End of Boring
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP11-DUP		
Monitoring Well ID:	PSP11		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP11-DUP		
Easting:	-79.8401	***Northing:***	36.0543
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Deilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1135
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1145
Total Borehole Depth (feet bgs):	5		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP11-DUP	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)	Sample Interval	Depth (feet bgs)	Soil Description
1135	36/60	S		Organic rich, silty clay, dark to medium reddish brown, dry
			1	
				Increasing moisture and sand content with depth
			2	red to medium brown sandy silty clay
			3	Soil gas implant set (3-4')
			4	red to medium brown silty sandy clay
				Increasing moisture and sand content with depth
			5	End of Boring
			6	
			7	
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
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			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP12		
Monitoring Well ID:	PSP12		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP12		
Easting:	-79.8400	***Northing:***	36.0539
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1045
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1055
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	9/11/2019	***Well Completion Time:***	1100
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	10.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP12 **MW ID:** PSP12	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)	Sample Interval	Depth (feet bgs)	Soil Description
1048	54/60	S		dry, organic rich, medium brown, slightly sandy silty clay, grey mottles
			1	
			2	
			3	Dry, red to tan, sandy silty clay; Soil gas implant (2.5-3')
			4	Dry, red, stiff clay
			5	
1050	54/60			Dry, red silty clay; Soil gas implant (5.5-6')
			6	
			7	Moist, red to medium brown, slightly silty clay
			8	wet, white sand
			9	wet silty sand, saprolitic micaceous schist
			10	End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP13		
Monitoring Well ID:	PSP13		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP13		
Easting:	-79.8395	***Northing:***	36.0536
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series	DPT	
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	920
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	1055
Total Borehole Depth (feet bgs):	20		
Well Completion Date:	9/12/2019	***Well Completion Time:***	1100
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	20.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP13 **MW ID:** PSP13	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)	Sample Interval	Depth (feet bgs)	Soil Description
920	60/60	S		dry, stiff red clay, trace gravel
			1	dry, stiff red clay, uniform
			2	
			3	
			4	
			5	
925	60/60		6	Soil gas implant (5.5-6')
			7	
			8	orangish-red clay, increased moisture
			9	moist, saprolitic schist mottled with clay
			10	
1050	60/60		11	
(9/12/2019)				
			12	
			13	
			14	
			15	
1055	60/60		16	moist, black and white saprolite schist with red clay layers
(9/12/2019)				
			17	
			18	
			19	
			20	End of Boring
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP14		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP14		
Easting:	-79.8401	***Northing:***	36.0553
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series	DPT	
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	0835
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	0845
Total Borehole Depth (feet bgs):	7.5		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/12/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP14	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
835	60/60			Dark organic rich
			1	Wet, light brown to light gray mottled clay
			2	
			3	
			4	
			5	
840	60/60		6	dry saprolite
			7	Soil gas implant (7-7.5')
				End of Boring, refusal
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP15		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP15		
Easting:	-79.8388	***Northing:***	36.0550
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	0930
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	
Total Borehole Depth (feet bgs):	7		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/12/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP15	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
930	60/60			dry red uniform clay
				Wet, light brown to light gray mottled clay
			1	
			2	
			3	
				Moist, red to yellow mottled clay
			4	
			5	
	60/60		6	
				dry loose clayey sand; Soil gas implant (6.5-7')
				End of Boring
			7	
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP16		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP16		
Easting:	-79.8415	***Northing:***	36.0547
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1415
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1430
Total Borehole Depth (feet bgs):	15		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie.Shaver
BORING ID:	PSP16	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1415	60/60			dry, organic rich, dark brown
				dry red uniform clay
			1	
			2	
			3	
			4	
			5	
1420	60/60		6	dry red uniform clay
			7	
			8	
			9	
			10	
1422	60/60		11	dry red clay, micaceous, slightly less stiff
			12	
			13	
			14	
			15	Soil gas implant (14.5-15')
				End of Boring
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP17		
Monitoring Well ID:	PSP17		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP17		
Easting:	-79.8409	***Northing:***	36.0548
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	0818
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	0830
Total Borehole Depth (feet bgs):	13.5		
Well Completion Date:	9/12/2019	***Well Completion Time:***	840
Screen Interval (feet bgs):	10.0	***Total Well Depth (feet bgs):***	13.5
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume		**DATE:**	9/12/2019
SITE:	Patterson Street		**LOGGED BY:**	John Snyder
BORING ID:	PSP17 **MW ID:**	PSP17	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
818	60/60			dry light brown sandy clay with gravel
			1	dry brown clay with gravel
			2	uniform light brown clay
			3	
			4	moist light brown clay
			5	
825	60/60		6	moist light brown coarse sand
			7	moist light brown sandy clay Soil gas implant set (7')
			8	
			9	
			10	
830	60/60		11	light brown moist coarse sand with clay
			12	
			13	
			14	End of Boring, refusal
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP18		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP18		
Easting:		***Northing:***	
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1350
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1400
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie.Shaver
BORING ID:	PSP18	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1350	60/60			dry organic rich fine sand
			1	
			2	
			3	dry gray to light brown mottled clayey sand
			4	
			5	light brown clay
1355	60/60		6	brown to dark brown mottled crumbling clayey fine-grained sand
			7	firm brown to light brown clayey sand
			8	
			9	
			10	End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP19		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP19		
Easting:	-79.8395	***Northing:***	36.0549
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	0910
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	0915
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/12/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP19	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
910	60/60			dry brown loam
			1	
				dry light brown to brown mottled clay with sand
			2	
			3	brown to light grey mottled clayey sand
			4	
			5	
915	60/60		6	brown to light grey mottled clayey sand
			7	Soil gas implant set (6.5-7')
			8	moist dark brown gravely clay
			9	
			10	End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP20		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP20		
Easting:	-79.8392	***Northing:***	36.0542
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1020
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1025
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume		**DATE:**	9/11/2019
SITE:	Patterson Street		**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP20			**Page 2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1020	60/60			moist mottled tan to light gray sandy silty clay
			1	
			2	moist mottled tan and light gray sandy silty clay, decreasing sand content and increasing clay content from above
			3	
			4	dry tan and grey mottled sandy clay
			5	slightly moist tan and gray mottled sandy silty clay; soil gas implant set (5.5-6')
1025	60/60		6	
			7	
			8	moist tan and grey mottled sandy silty clay, increasing clay content and decreasing sand content with depth
			9	
			10	dark grey and red mottled silty clay End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP21		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP21		
Easting:	-79.8384	***Northing:***	36.0545
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	0955
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1000
Total Borehole Depth (feet bgs):	5		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP21	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
955	60/60			dry red clayey sand with some organic material at surface
			1	
			2	Soil gas implant set (2.5-3')
			3	moist red clayey sand with less sand from above, moisture increasing with depth
			4	tan silty clay grading from lighter to darker brown
			5	End of Boring
			6	
			7	
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP23		
Monitoring Well ID:	PSP23		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP23		
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	1309
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	1315
Total Borehole Depth (feet bgs):	7		
Well Completion Date:	9/12/2019	***Well Completion Time:***	1325
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	7.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/12/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP23 **MW ID:** PSP23	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1309	48/60			dry light brown, organic rich, clayey silt
			1	dry medium brown silty clay with red mottles
			2	
			3	Soil gas implant set (2.5-3')
				slightly moist medium brown silty clay
			4	
			5	moist medium brown silty sandy clay, loose
1315	48/60		6	gray clay with red clay mottles
			7	gray very sandy clay ending in saprolite, pulverized weathered bedrock
				End of Boring, refusal
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP24		
Monitoring Well ID:	PSP24		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP24		
Easting:	-79.8385	***Northing:***	36.0530
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	0840
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	0850
Total Borehole Depth (feet bgs):	6.5		
Well Completion Date:	9/12/2019	***Well Completion Time:***	855
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	6.5
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP24 **MW ID:** PSP24	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
840	36/60			dry, light brown silty sand with organic material
			1	
				uniform moist brown sand
			2	
				moist to very moist light brown clay; Soil gas implant set (2.5-3')
			3	
			4	
			5	
845	24/24			dry light grey sand
			6	dry light brown sand
				End of Boring, refusal
			7	
			8	
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP25		
Monitoring Well ID:	PSP25		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP24		
Easting:	-79.8417	***Northing:***	36.0551
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1510
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1520
Total Borehole Depth (feet bgs):	10		
Well Completion Date:	9/12/2019	***Well Completion Time:***	1530
Screen Interval (feet bgs):	5.0	***Total Well Depth (feet bgs):***	10.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP25 **MW ID:** PSP25	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1510	45/60			dark brown organic rich loam
			1	dry light brown fine sand
			2	Soil gas implant set (1.5-2')
			3	moist dark brown sandy clay
			4	
			5	
1515	45/60		6	saturated light gray sandy clay
			7	
			8	moist dark brown weathered saprolite
			9	
			10	End of Boring
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP26		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP26		
Easting:	-79.8415	***Northing:***	36.0555
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1535
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1545
Total Borehole Depth (feet bgs):	8		
Well Completion Date:	NA	***Well Completion Time:***	NA
Screen Interval (feet bgs):	NA	***Total Well Depth (feet bgs):***	NA
Well Diameter: (inches)	NA	***Well Casing Material:***	NA

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP26	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1535	60/60			dry uniform fine grained sand
			1	
			2	
			3	gray uniform silty clay
			4	
			5	
1540	60/60		6	saprolite
			7	
			8	Soil gas implant set (7.5-8') End of Boring, refusal
			9	
			10	
			11	
			12	
			13	
			14	
			15	
			16	
			17	
			18	
			19	
			20	
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP27		
Monitoring Well ID:	PSP27		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP27		
Easting:	-79.8400	***Northing:***	36.0537
Logged By:	John Snyder		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/12/2019	***Drill Start Time:***	1025
Drill Finish Date:	9/12/2019	***Drill Finish Time:***	1040
Total Borehole Depth (feet bgs):	20		
Well Completion Date:	9/12/2019	***Well Completion Time:***	1045
Screen Interval (feet bgs):	10.0	***Total Well Depth (feet bgs):***	20.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/11/2019
SITE:	Patterson Street	**LOGGED BY:**	John Snyder
BORING ID:	PSP27 **MW ID:** PSP27	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1025	60/60			dry uniform red clay
			1	
			2	
			3	
			4	
			5	
1028	60/60		6	dry uniform red clay
			7	
			8	dry red and light brown mottled clay
			9	Soil gas implant set (9.5-10')
			10	
1032	60/60		11	dry red and light brown mottled clay
			12	dry brown clay with saprolite
			13	
			14	
			15	
1035	60/60		16	damp white fine grained sand
			17	saturated clay with saprolite
			18	saturated white coarse sand with saprolite
			19	
			20	End of Boring
			21	
			22	
			23	
			24	

BOREHOLE LOG

Boring ID:	PSP28		
Monitoring Well ID:	NA		
Project Number:	TT-05-041	***Project Name:***	Patterson Street Solvent Plume
Client:	EPA		
Site:	Patterson Street		
Borehole Location:	PSP28		
Easting:	-79.8415	***Northing:***	36.0555
Logged By:	Leslie Shaver		
Reviewed By:	Leslie Shaver	***Review Date:***	12/18/2019
Drilling Contractor:	Cascade Drilling		
Drill Rig Type/Method:	Geoprobe-7000 series DPT		
Borehole Diameter (inches):	2.0		
Drill Start Date:	9/11/2019	***Drill Start Time:***	1535
Drill Finish Date:	9/11/2019	***Drill Finish Time:***	1545
Total Borehole Depth (feet bgs):	24		
Well Completion Date:	9/12/2019	***Well Completion Time:***	1550
Screen Interval (feet bgs):	10.0	***Total Well Depth (feet bgs):***	24.0
Well Diameter: (inches)	1.0	***Well Casing Material:***	PVC

PROJECT:	Patterson Street Solvent Plume	**DATE:**	9/12/2019
SITE:	Patterson Street	**LOGGED BY:**	Leslie Shaver
BORING ID:	PSP28	**Page**	**2 of 2**

Time	Recovered/Driven (in./in.)		Depth (feet bgs)	Soil Description
1115	48/60			Dry, tight, red clay
			1	
			2	
			3	
			4	Slightly sandy, dry, tight, red clay
			5	
1117	60/60			
			6	Soil gas implant set (6.5-7')
			7	
			8	Dry, red, sandy clay
			9	
			10	Dry, tan, micaceous sandy clay
			11	
			12	
			13	
			14	
	60/60		15	Dry, tan, micaceous sandy clay with increasing moisture
			16	
			17	
			18	
			19	
	48/48		20	
			21	Saprolitic, tan and white, micaceous schist
			22	
			23	
			24	End of boring

APPENDIX D

SITE INSPECTION PHOTOGRAPHIC LOG

(12 Pages)

OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	West	**Date:**	September 9, 2019
Photographer:	Amber Falkner, Tetra Tech, Inc. (Tetra Tech)	**Witness:**	Quinn Kelley, Tetra Tech
Subject:	Tetra Tech uses the thermal imaging camera (provided by the U.S. Environmental Protection Agency [EPA] Laboratory Services and Applied Sciences Division) to identify groundwater seeps into the bedrock unnamed tributary. Seeps appear as dark blue on the thermal imaging camera; colder than the surface water temperature.		

OFFICIAL PHOTOGRAPH NO. 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	North	**Date:**	September 10, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech collects a surface water sample at location PSP06 along the urban ditch unnamed tributary.

OFFICIAL PHOTOGRAPH NO. 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Not Applicable	**Date:**	September 9, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Leslie Shaver, Tetra Tech

Subject: Tetra Tech prepares the air sample canisters for deployment throughout the study area neighborhood.

OFFICIAL PHOTOGRAPH NO. 4
U.S. ENVIRONMENTAL PROTECTION AGENCY

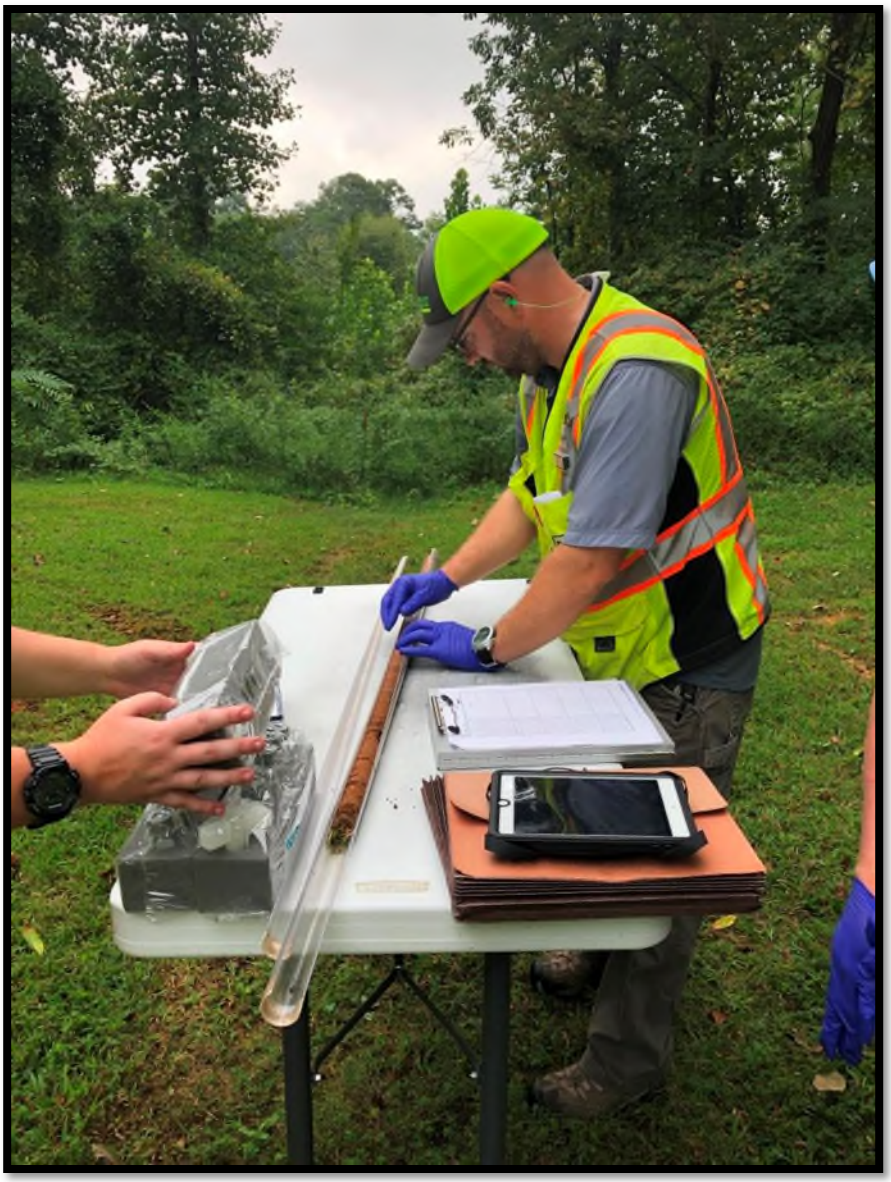
TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Northeast	**Date:**	September 9, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech deploys ambient air sample at location PSP13.

OFFICIAL PHOTOGRAPH NO. 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	South	**Date:**	September 12, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	John Snyder, Tetra Tech

Subject: Tetra Tech oversees the drillers to collect soil gas at location PSP19.



OFFICIAL PHOTOGRAPH NO. 6
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Northeast	**Date:**	September 11, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: The Tetra Tech geologist logs the soil core from location PSP13. A soil gas and surface soil sample were collected from this location.

OFFICIAL PHOTOGRAPH NO. 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	North	**Date:**	September 11, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech collects surface soil sample with a Terracore kit for volatile organic compound analysis at location PSP11.

OFFICIAL PHOTOGRAPH NO. 8
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	East	**Date:**	September 11, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech collects a groundwater sample at location PSP10.

OFFICIAL PHOTOGRAPH NO. 9
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Not Applicable	**Date:**	September 10, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Seep that originates the urban ditch unnamed tributary (circular clearing at the center of the photograph). Surface water and ambient air samples were collected at this location (PSP22).

OFFICIAL PHOTOGRAPH NO. 10
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Not Applicable	**Date:**	September 10, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech installs the pore water sampler at location PSP22.

OFFICIAL PHOTOGRAPH NO. 11
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Not Applicable	**Date:**	September 10, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: The pore water sampler did not produce any water; therefore, a pore water sample was not collected at this location (PSP22).

OFFICIAL PHOTOGRAPH NO. 12
U.S. ENVIRONMENTAL PROTECTION AGENCY

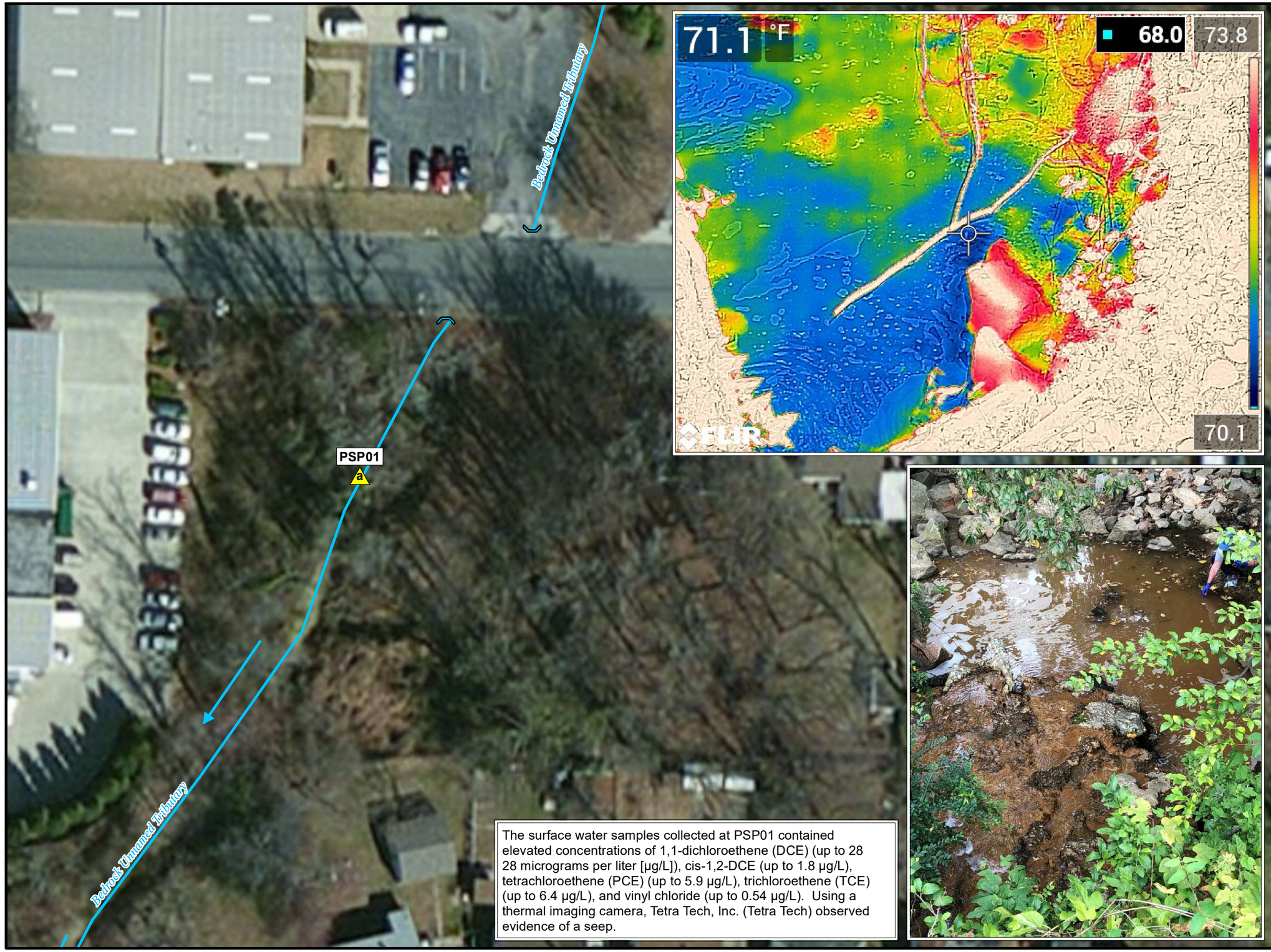
TDD Number:	TT-05-041	**Project:**	Patterson Street Solvent Plume
Orientation:	Northeast	**Date:**	September 13, 2019
Photographer:	Quinn Kelley, Tetra Tech	**Witness:**	Amber Falkner, Tetra Tech

Subject: Tetra Tech collects split soil gas samples at location PSP13.

APPENDIX E

SURFACE WATER PHOTOGRAPHIC LOG

(10 Pages)



The surface water samples collected at PSP01 contained elevated concentrations of 1,1-dichloroethene (DCE) (up to 28 28 micrograms per liter [µg/L]), cis-1,2-DCE (up to 1.8 µg/L), tetrachloroethene (PCE) (up to 5.9 µg/L), trichloroethene (TCE) (up to 6.4 µg/L), and vinyl chloride (up to 0.54 µg/L). Using a thermal imaging camera, Tetra Tech, Inc. (Tetra Tech) observed evidence of a seep.

Legend

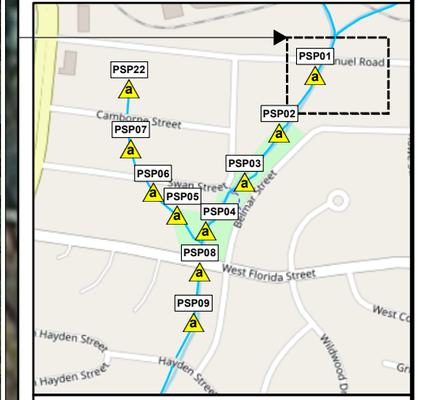
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site
Temperatures displayed on thermal image are in degrees Fahrenheit.

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

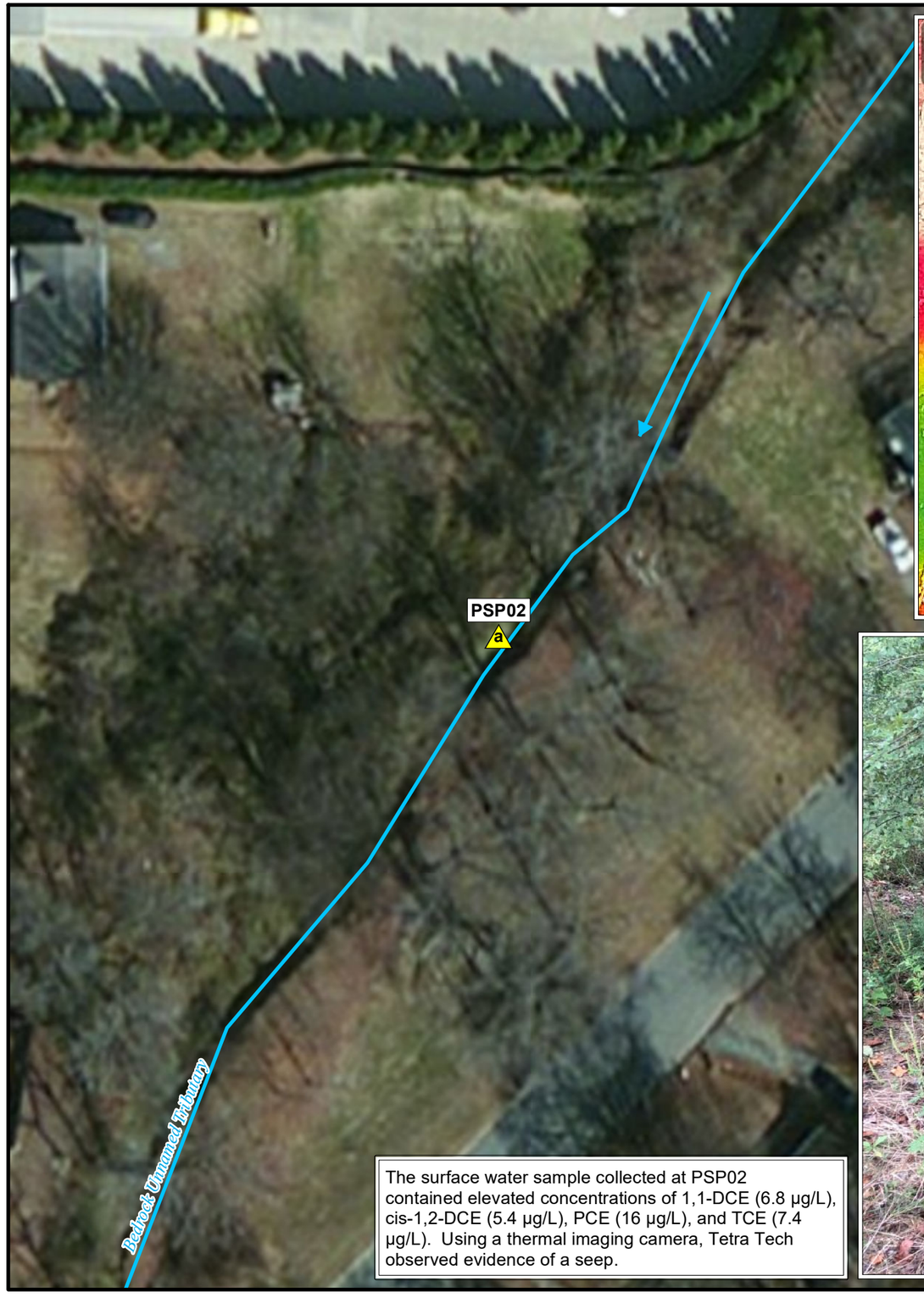
Surface Water Location PSP01

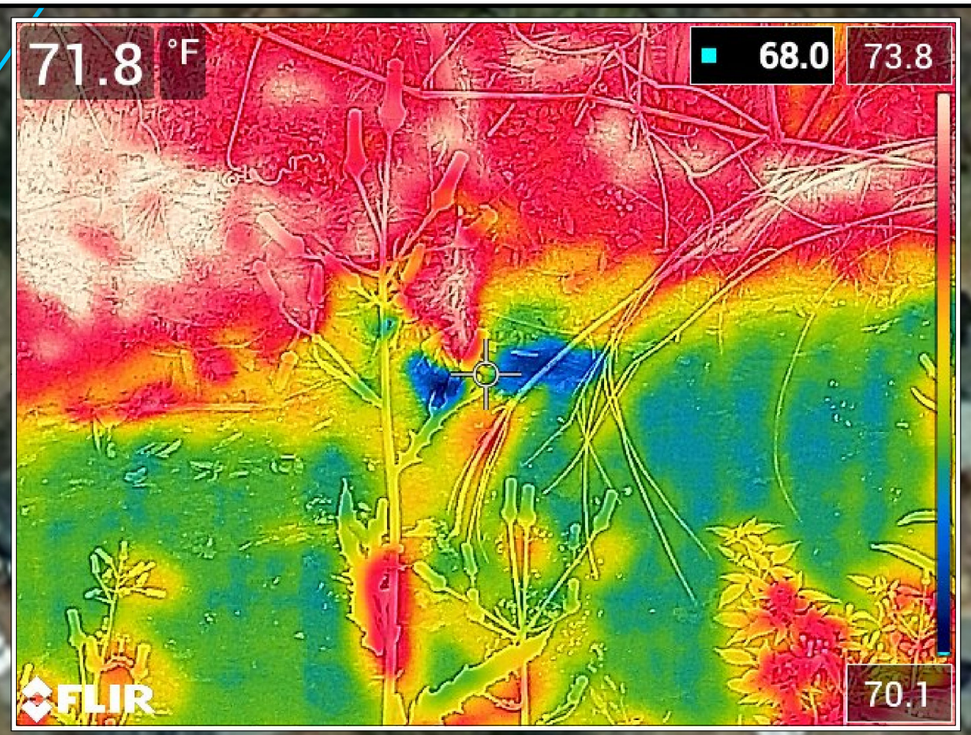
TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP01.mxd





The surface water sample collected at PSP02 contained elevated concentrations of 1,1-DCE (6.8 µg/L), cis-1,2-DCE (5.4 µg/L), PCE (16 µg/L), and TCE (7.4 µg/L). Using a thermal imaging camera, Tetra Tech observed evidence of a seep.

Legend

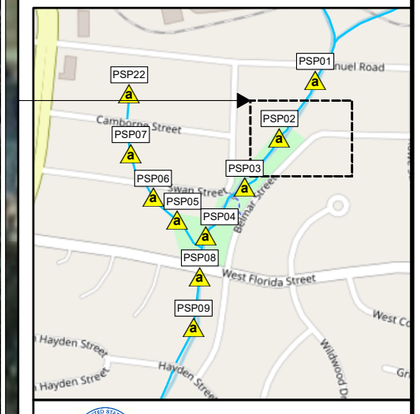
- Surface Water Sample
- Surface Water
- Direction of Flow

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site
Temperatures displayed on thermal image are in degrees Fahrenheit.

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP02

TDD Name:	Patterson Street Solvent Plume Site	
TDD No.:	TT-05-041	
City: Greensboro	**County:** Guilford	**State:** North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP02.mxd

The surface water sample collected at PSP03 contained elevated concentrations of 1,1-DCE (9.6 µg/L), cis-1,2-DCE (12 µg/L), PCE (88 µg/L), TCE (33 µg/L), and vinyl chloride (0.84 µg/L).

Bedrock Unnamed Tributary

PSP03

Legend

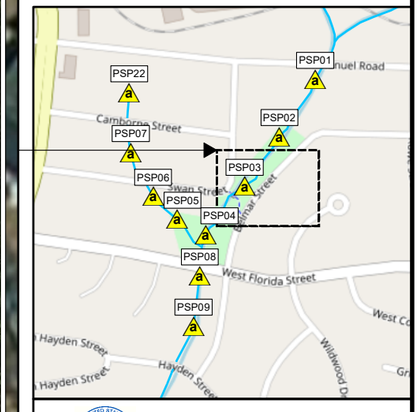
- Surface Water Sample
- Surface Water
- Direction of Flow

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP03

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP03.mxd

The surface water sample collected at PSP04 contained elevated concentrations of 1,1-DCE (40 µg/L), cis-1,2-DCE (20 µg/L), PCE (49 µg/L), TCE (31 µg/L), and vinyl chloride (1.3 µg/L).

PSP04

Urban Ditch Unnamed Tributary

Bedrock Unnamed Tributary

Legend

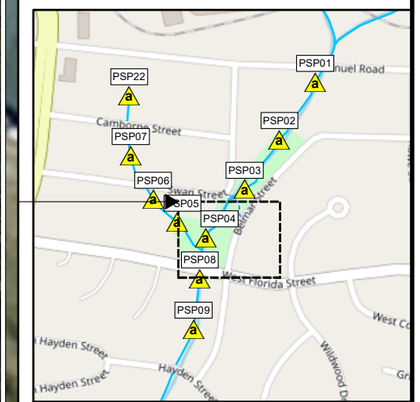
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP04

TDD Name:	Patterson Street Solvent Plume Site
TDD No.:	TT-05-041
City: Greensboro	**County:** Guilford
State:	North Carolina

TETRA TECH

Date: 1/20/2020

Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP04.mxd

The surface water sample collected at PSP05 contained elevated concentrations of 1,1-DCE (8.0 µg/L), cis-1,2-DCE (5.3 µg/L), PCE (8.6 µg/L), and TCE (6.2 µg/L).

Bedrock Unnamed Tributary

Urban Dried Unnamed Tributary

PSP05

Legend

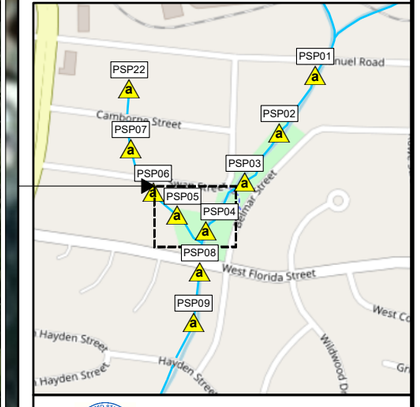
- Surface Water Sample
- Surface Water
- Direction of Flow

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States
Environmental Protection Agency
Region 4

Surface Water Location PSP05

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP05.mxd

The surface water sample collected at PSP06 contained elevated concentrations of 1,1-DCE (6.9 µg/L), cis-1,2-DCE (6.0 µg/L), PCE (6.6 µg/L), and TCE (6.2 µg/L).

Urban Ditch Unnamed Tributary

PSP06

Urban Ditch Unnamed Tributary

Legend

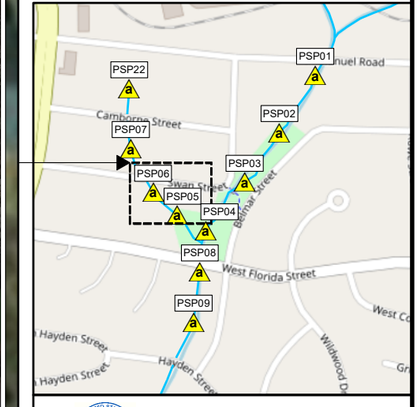
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP06

TDD Name:	Patterson Street Solvent Plume Site	
TDD No.:	TT-05-041	
City: Greensboro	**County:** Guilford	**State:** North Carolina

TETRA TECH

Date: 1/20/2020

Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP06.mxd

The surface water sample collected at PSP07 contained elevated concentrations of 1,1-DCE (7.4 µg/L), cis-1,2-DCE (6.6 µg/L), PCE (7.5 µg/L), and TCE (7.1 µg/L).

Urban Ditch Unnamed Tributary

PSP07

Legend

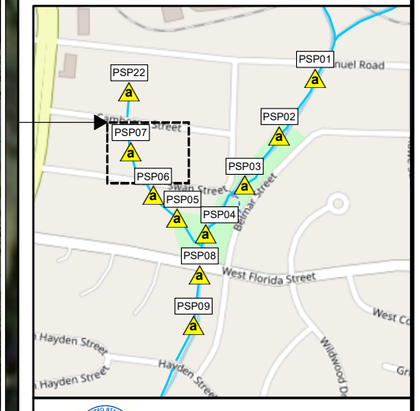
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States
Environmental Protection Agency
Region 4

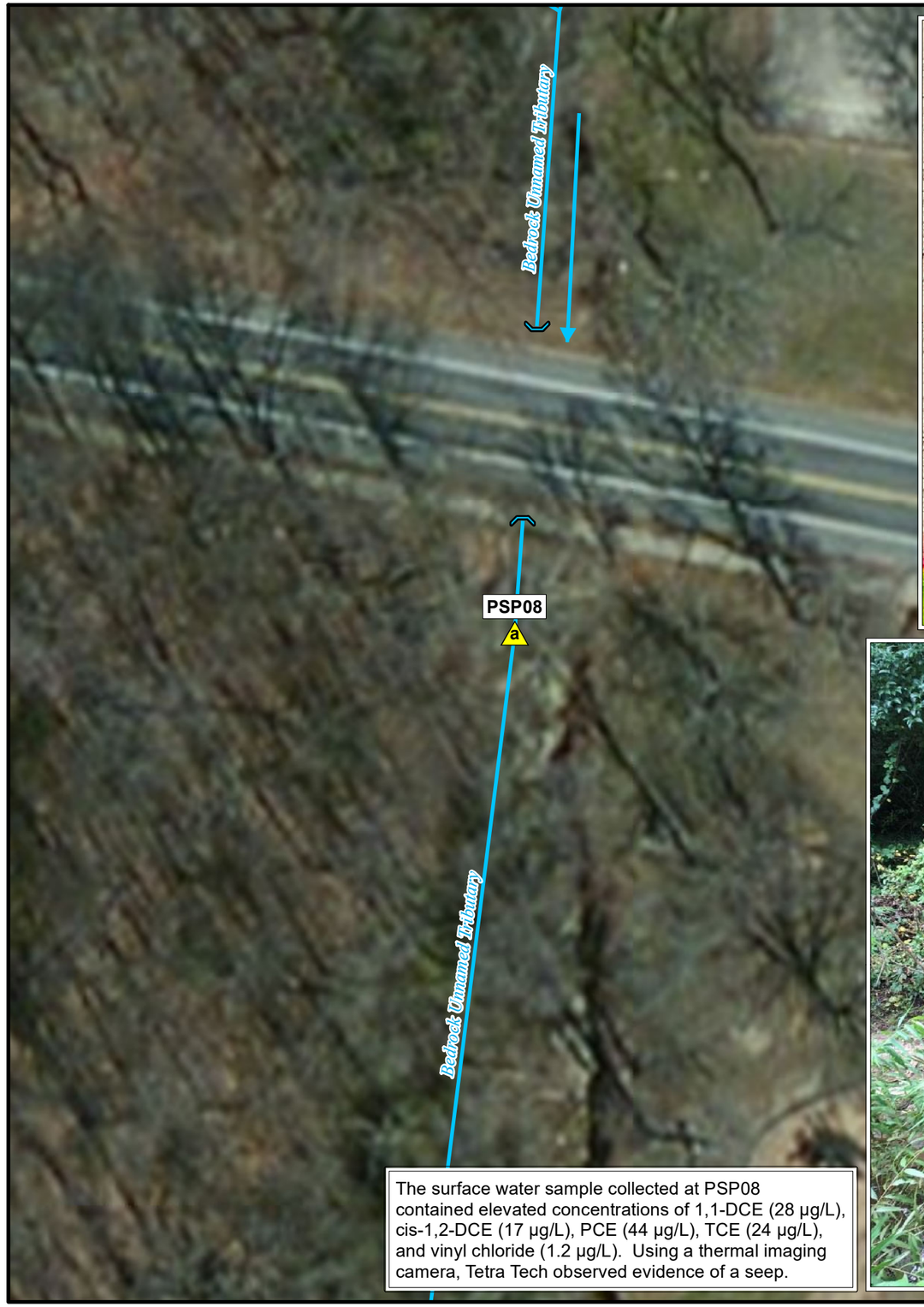
Surface Water Location PSP07

TDD Name:	Patterson Street Solvent Plume Site	
TDD No.:	TT-05-041	
City: Greensboro	**County:** Guilford	**State:** North Carolina

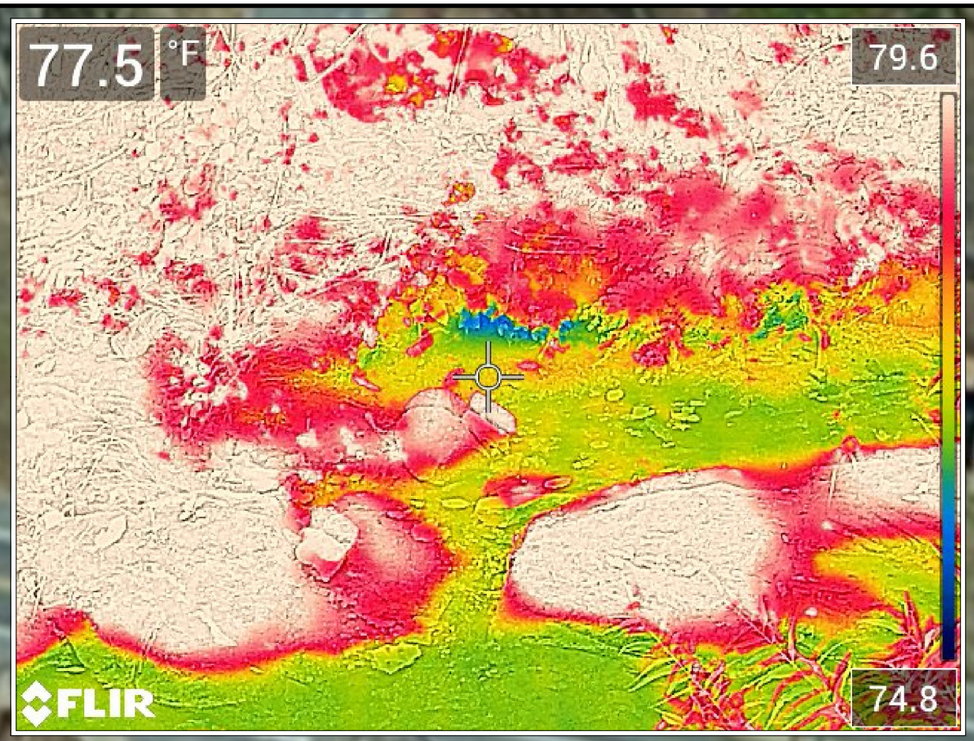
TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP07.mxd



The surface water sample collected at PSP08 contained elevated concentrations of 1,1-DCE (28 µg/L), cis-1,2-DCE (17 µg/L), PCE (44 µg/L), TCE (24 µg/L), and vinyl chloride (1.2 µg/L). Using a thermal imaging camera, Tetra Tech observed evidence of a seep.



Legend

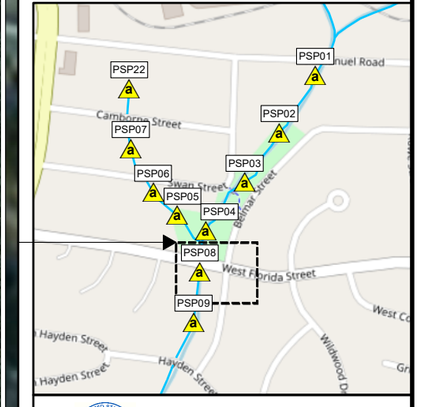
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site
Temperatures displayed on thermal image are in degrees Fahrenheit.

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP08

TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP08.mxd

The surface water sample collected at PSP09 contained elevated concentrations of 1,1-DCE (24 µg/L), cis-1,2-DCE (15 µg/L), PCE (36 µg/L), TCE (20 µg/L), and vinyl chloride (1.1 µg/L).

Bedrock Unnamed Tributary

PSP09

Legend

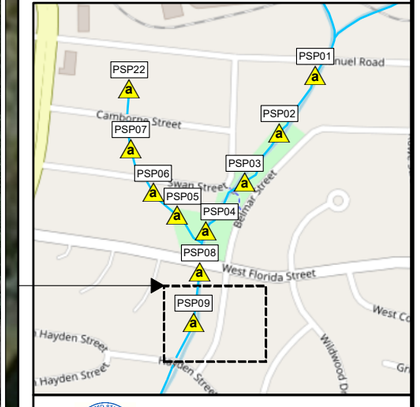
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

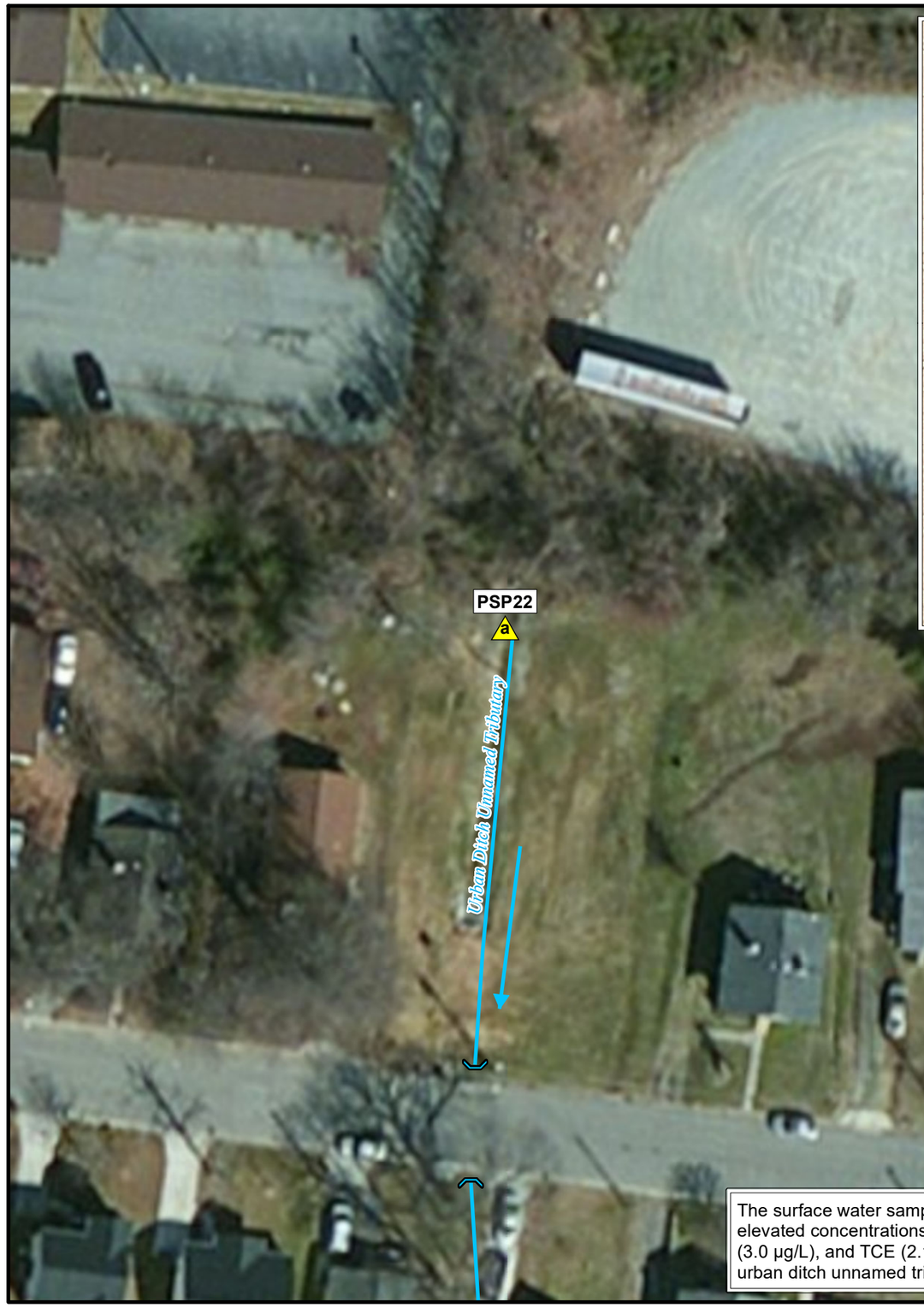
Surface Water Location PSP09

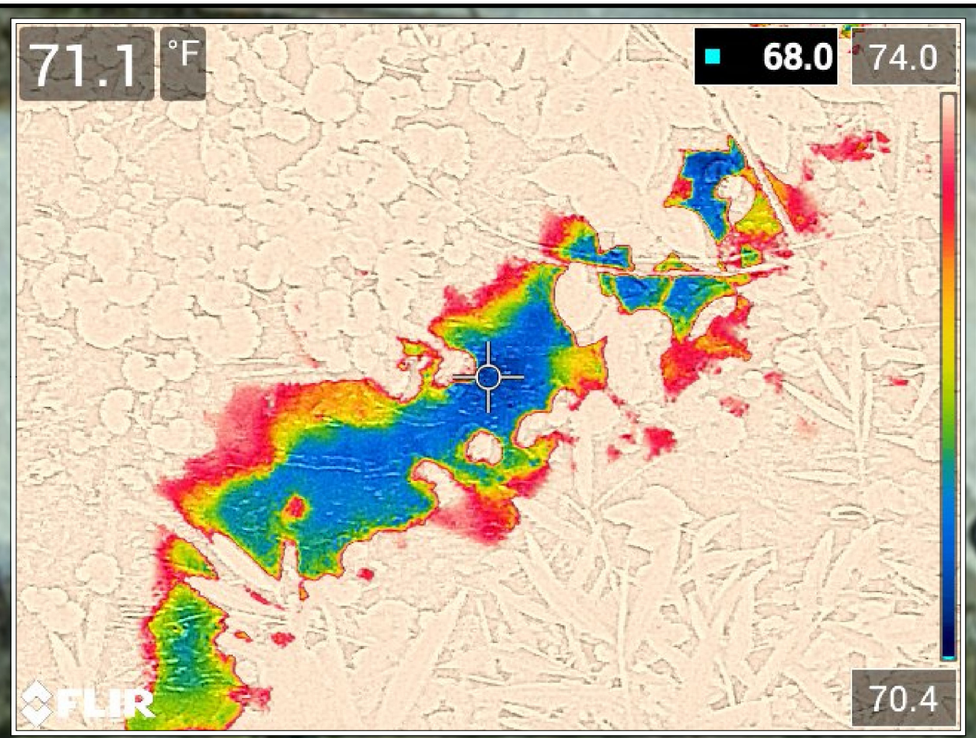
TDD Name: Patterson Street Solvent Plume Site
TDD No.: TT-05-041
City: Greensboro
County: Guilford
State: North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP09.mxd





The surface water sample collected at PSP22 contained elevated concentrations of cis-1,2-DCE (2.8 µg/L), PCE (3.0 µg/L), and TCE (2.1 µg/L). This seep originates the urban ditch unnamed tributary.

Legend

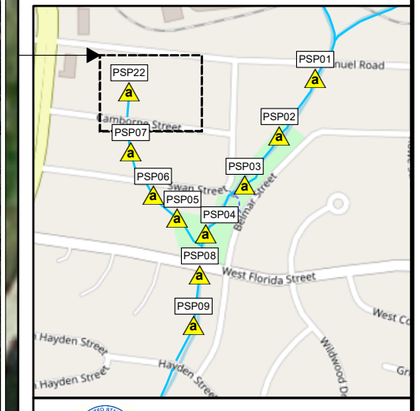
- Surface Water Sample
- Surface Water
- Direction of Flow
- Culvert

N
W E
S

0 25 50 Feet

Notes:
PSP - Patterspon Street Solvent Plume Site
Temperatures displayed on thermal image are in degrees Fahrenheit.

Map Source:
Bing Maps Aerial Imagery, 2015.



United States Environmental Protection Agency Region 4

Surface Water Location PSP22

TDD Name:	Patterson Street Solvent Plume Site	
TDD No.:	TT-05-041	
City: Greensboro	**County:** Guilford	**State:** North Carolina

TETRA TECH

Date: 1/20/2020
Analyst: dale.vonbusch

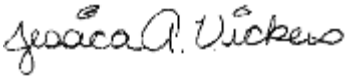
File: C:\TT-05-041_Patterson_St\mxd\water_sampling\water_sample_detail_PSP22.mxd

APPENDIX F

REVIEW OF FIELD QUALITY CONTROL SAMPLES

(Seven Pages)

Review of Field Quality Control Samples

Date:	December 16, 2019	**Project No.:**	TT-05-041
		Project Name:	Patterson Street Solvent Plume
Name:	Jessica Vickers		
Signature:			

The following is a summary of the review performed by Tetra Tech for the Regional Laboratory analytical data packages created for samples collected September 10 through 12, 2019 at the Patterson Street Solvent Plume site. This review was performed on the following field quality control (QC) samples: trip blank samples, equipment rinsate blanks samples, and field duplicate samples. This review was performed because the U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division, Office of Quality Assurance does not review these types of field QC samples as part of their validation effort. This policy was stated during a data validation webinar held on February 17, 2011. The webinar was attended by personnel from all 10 EPA Regions as well as personnel from various agencies that utilize the EPA CLP and Regional Laboratories for analytical support.

Trip Blank and Equipment Rinsate Blank Samples: Equipment rinsate blank collection frequencies (one per twenty samples) were met. One equipment rinsate sample (associated with soil samples) were collected and analyzed for select volatile organic compounds (VOCs). No VOCs were detected at or above the minimum reporting limits (MRL) in the equipment rinsate blank. Trip blank collection frequencies (one per shipment of VOC samples) were met. Two water and one soil trip blank were collected and analyzed for select VOCs. No VOCs were detected at or above the MRL in the trip blanks.

Field Duplicate Samples: Field duplicate collection frequencies (one per twenty samples per matrix) were met for all matrices. One field duplicate sample each for groundwater (PSP24-GW-DUP), surface water (PSP01-SW-DUP), and surface soil (PSP11-SF-DUP) were collected and analyzed for VOCs. The acceptance criteria were less than or equal to 50 percent relative percent difference (RPD) for soils and less than or equal to 25 percent for groundwater and surface water, or an absolute difference between the two results less than or equal to the MRL if one of the two results of the pair is below its MRL or non-detect (in which case the MRL is used for the calculation). These criteria were met for all three field duplicate samples collected and analyzed.

Review of Field Quality Control Samples

Date:	December 16, 2019	**Project No.:**	TT-05-041
		Project Name:	Patterson Street Solvent Plume
Name:	Jessica Vickers		
Signature:			

The following is a summary of the review performed by Tetra Tech for the Regional Laboratory analytical data packages created for samples collected September 10 through 13, 2019 at the Patterson Street Solvent Plume site. This review was performed on the field duplicate/split samples. This review was performed because the U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division, Office of Quality Assurance does not review these types of field QC samples as part of their validation effort. This policy was stated during a data validation webinar held on February 17, 2011. The webinar was attended by personnel from all 10 EPA Regions as well as personnel from various agencies that utilize the EPA CLP and Regional Laboratories for analytical support.

Field Duplicate Samples: Field duplicate/split collection frequencies (one per twenty samples per matrix) were met for all matrices. One field duplicate/split sample each for ambient air (PSP10-AA-DUP) and soil gas (PSP13-SG-SPLIT) were collected and analyzed for volatile organic compounds (VOCs). The acceptance criteria were less than or equal to 25 percent relative percent difference (RPD), or an absolute difference between the two results less than or equal to the MRL if one of the two results of the pair is below its MRL or non-detect (in which case the MRL is used for the calculation).

These criteria were met for the soil gas split sample collected and analyzed. For the ambient air field duplicate sample pair PSP10-AA and PSP10-AA-DUP, the RPD value for VOC tetrachloroethene was greater than 25 percent. The tetrachloroethene results for both samples were qualified as estimated (J).

The attached laboratory sample result forms have been hand-annotated in blue ink, where appropriate, to indicate any additional qualifications that were required due to the exceedances discussed above.

LABORATORY SAMPLE RESULTS FORMS FOR FIELD DUPLICATE SAMPLE PAIRS

(Two Pages)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Sallie Hale

Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP10-AA **Lab ID:** E193801-01
Station ID: PSP10 **Matrix:** Air

Date Collected: 9/11/19 14:42

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.55		ug/m3	0.23	9/16/19 11:32	9/17/19 18:20	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.36		ug/m3	0.21	9/16/19 11:32	9/17/19 18:20	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.90	J	ug/m3	0.36	9/16/19 11:32	9/17/19 18:20	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:32	9/17/19 18:20	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.63		ug/m3	0.29	9/16/19 11:32	9/17/19 18:20	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:32	9/17/19 18:20	EPA TO-15

12/16/19

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Sallie Hale

Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

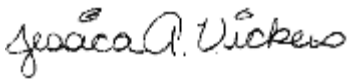
Sample ID: PSP10-AA-DUP **Lab ID:** E193801-02
Station ID: PSP10 **Matrix:** Air

Date Collected: 9/11/19 14:42

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.54		ug/m3	0.23	9/16/19 11:36	9/17/19 20:03	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.34		ug/m3	0.21	9/16/19 11:36	9/17/19 20:03	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.2	J	ug/m3	0.37	9/16/19 11:36	9/17/19 20:03	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.40		ug/m3	0.21	9/16/19 11:36	9/17/19 20:03	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.66		ug/m3	0.29	9/16/19 11:36	9/17/19 20:03	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:36	9/17/19 20:03	EPA TO-15

12/16/19

Review of Field Quality Control Samples

Date:	December 18, 2019	**Project No.:**	TT-05-041
		Project Name:	Patterson Street Solvent Plume
Name:	Jessica Vickers		
Signature:			

The following is a summary of the review performed by Tetra Tech for the Regional Laboratory analytical data packages created for samples collected December 4, 2019 at the Patterson Street Solvent Plume site. This review was performed on the field duplicate samples. This review was performed because the U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division, Office of Quality Assurance does not review these types of field QC samples as part of their validation effort. This policy was stated during a data validation webinar held on February 17, 2011. The webinar was attended by personnel from all 10 EPA Regions as well as personnel from various agencies that utilize the EPA CLP and Regional Laboratories for analytical support.

Field Duplicate Samples: Field duplicate collection frequencies (one per twenty samples per matrix) were met. One field duplicate sample air (PSP20-AA-DUP) was collected and analyzed for volatile organic compounds (VOCs). The acceptance criteria were less than or equal to 25 percent relative percent difference (RPD), or an absolute difference between the two results less than or equal to the MRL if one of the two results of the pair is below its MRL or non-detect (in which case the MRL is used for the calculation). These criteria were met for the air field duplicate sample pair.

Review of Field Quality Control Samples

Date:	January 7, 2020	**Project No.:**	TT-05-041
		Project Name:	Patterson Street Solvent Plume
Name:	Jessica Vickers		
Signature:			

The following is a summary of the review performed by Tetra Tech for the Regional Laboratory analytical data packages created for samples collected December 3, 2019 at the Patterson Street Solvent Plume site. This review was performed on the trip blank sample. This review was performed because the U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division, Office of Quality Assurance does not review these types of field QC samples as part of their validation effort. This policy was stated during a data validation webinar held on February 17, 2011. The webinar was attended by personnel from all 10 EPA Regions as well as personnel from various agencies that utilize the EPA CLP and Regional Laboratories for analytical support.

Trip Blank Sample: Trip blank collection frequencies (one per shipment of volatile organic compounds [VOC] samples) were met. The trip blank was collected and analyzed for select VOCs. No VOCs were detected at or above the minimum reporting limits in the trip blanks.

ATTACHMENT 1

EPA LABORATORY SERVICES AND APPLIED SCIENCES DIVISION (LSASD)
ANALYTICAL DATA PACKAGES

(112 Sheets)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

November 19, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 19-0323, Patterson Street Solvent Plume

FROM: Kristin Trapp
OCS Analyst

THRU: Jeffrey Hendel, Chief
LSB Organic Chemistry Section

TO: Cathy Amoroso

This data report is being reissued. Some or all of these results were previously reported. Please substitute the corrected results for those results previously reported. Please refer to the Report Narrative for more details.

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Physical Properties (PHYSP)		
Physical Properties	EPA 200.2 (Soil)	ISO
Volatile Organics (VOA)		
Volatile organic compounds	EPA 8260C (Soil)	ISO
Volatile organic compounds	EPA 8260C (Water)	ISO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

Report Narrative for Project: 19-0323

11/19/19 KT VOA Soil and Water: This data has been reissued to include only those analytes requested by the project leader. This report replaces E193705, E193707 PHYS VOA FINAL 10 15 19 1802.pdf.

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

cc: Nardina Turner

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

SAMPLES INCLUDED IN THIS REPORT

Project: 19-0323, Patterson Street Solvent Plume

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
PSP-TB-01	E193705-01	Trip Blank - Soil	9/11/19 17:35	9/12/19 10:25
PSP-TB-02	E193705-02	Trip Blank - Water	9/11/19 17:30	9/12/19 10:25
PSP01-SW	E193705-03	Surface Water	9/10/19 09:44	9/12/19 10:25
PSP01-SW-DUP	E193705-04	Surface Water	9/10/19 09:45	9/12/19 10:25
PSP02-SW	E193705-05	Surface Water	9/10/19 09:26	9/12/19 10:25
PSP03-SW	E193705-06	Surface Water	9/10/19 09:18	9/12/19 10:25
PSP04-SW	E193705-07	Surface Water	9/10/19 09:10	9/12/19 10:25
PSP05-SW	E193705-08	Surface Water	9/10/19 10:40	9/12/19 10:25
PSP06-SW	E193705-09	Surface Water	9/10/19 10:53	9/12/19 10:25
PSP07-SW	E193705-10	Surface Water	9/10/19 11:00	9/12/19 10:25
PSP08-SW	E193705-11	Surface Water	9/10/19 09:00	9/12/19 10:25
PSP09-SW	E193705-12	Surface Water	9/10/19 08:41	9/12/19 10:25
PSP10-GW	E193705-13	Groundwater	9/11/19 16:48	9/12/19 10:25
PSP10-SF	E193705-14	Surface Soil	9/11/19 11:55	9/12/19 10:25
PSP11-SF	E193705-15	Surface Soil	9/11/19 11:25	9/12/19 10:25
PSP11-SF-DUP	E193705-16	Surface Soil	9/11/19 11:40	9/12/19 10:25
PSP12-GW	E193705-17	Groundwater	9/11/19 16:21	9/12/19 10:25
PSP12-SF	E193705-18	Surface Soil	9/11/19 10:55	9/12/19 10:25
PSP13-SF	E193705-19	Surface Soil	9/11/19 09:30	9/12/19 10:25
PSP22-SEEP	E193705-20	Surface Water	9/10/19 11:12	9/12/19 10:25
PSP-EB-01	E193707-01	Equipment Rinse Blank	9/12/19 17:14	9/13/19 9:50
PSP-TB-03	E193707-02	Trip Blank - Water	9/12/19 17:15	9/13/19 9:50
PSP11-GW	E193707-03	Groundwater	9/12/19 14:50	9/13/19 9:50
PSP13-GW	E193707-04	Groundwater	9/12/19 15:15	9/13/19 9:50
PSP17-GW	E193707-05	Groundwater	9/12/19 14:15	9/13/19 9:50
PSP24-GW	E193707-06	Groundwater	9/12/19 13:35	9/13/19 9:50
PSP24-GW-DUP	E193707-07	Groundwater	9/12/19 13:37	9/13/19 9:50
PSP25-GW	E193707-08	Groundwater	9/12/19 09:35	9/13/19 9:50

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
QI-1	Internal standard was outside of method control limits.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP-TB-01 **Lab ID:** E193705-01

Station ID: **Matrix:** Trip Blank - Soil

Date Collected: 9/11/19 17:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C
75-01-4	Vinyl chloride	0.95	U	ug/kg dry	0.95	9/12/19 14:38	9/16/19 16:18	EPA 8260C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

Physical Properties

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP-TB-01 **Lab ID:** E193705-01

Station ID: **Matrix:** Trip Blank - Soil

Date Collected: 9/11/19 17:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	100		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP-TB-02 **Lab ID:** E193705-02

Station ID: **Matrix:** Trip Blank - Water

Date Collected: 9/11/19 17:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:13	EPA 8260C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 19-0323
Project: 19-0323, Patterson Street Solvent Plume - Reported by Kristin Trapp

Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP01-SW **Lab ID:** E193705-03
Station ID: PSP01 **Matrix:** Surface Water

Date Collected: 9/10/19 9:44

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	27		ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	1.8		ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	5.9		ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	6.3		ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C
75-01-4	Vinyl chloride	0.52		ug/L	0.50	9/16/19 15:18	9/16/19 18:24	EPA 8260C

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Sample ID: PSP01-SW-DUP **Lab ID:** E193705-04
Station ID: PSP01 **Matrix:** Surface Water

Date Collected: 9/10/19 9:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	28		ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	1.8		ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	5.8		ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	6.4		ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C
75-01-4	Vinyl chloride	0.54		ug/L	0.50	9/16/19 15:18	9/16/19 18:50	EPA 8260C

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Sample ID: PSP02-SW **Lab ID:** E193705-05
Station ID: PSP02 **Matrix:** Surface Water

Date Collected: 9/10/19 9:26

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	6.8		ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	5.4		ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	16		ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	7.4		ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C
75-01-4	Vinyl chloride	0.26	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 19:16	EPA 8260C

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Sample ID: PSP03-SW **Lab ID:** E193705-06
Station ID: PSP03 **Matrix:** Surface Water

Date Collected: 9/10/19 9:18

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	9.6		ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	12		ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	88		ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	33		ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C
75-01-4	Vinyl chloride	0.84		ug/L	0.50	9/16/19 15:18	9/17/19 0:05	EPA 8260C

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Sample ID: PSP04-SW **Lab ID:** E193705-07
Station ID: PSP04 **Matrix:** Surface Water

Date Collected: 9/10/19 9:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	40		ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	20		ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	49		ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	31		ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C
75-01-4	Vinyl chloride	1.3		ug/L	0.50	9/16/19 15:18	9/16/19 19:43	EPA 8260C

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Sample ID: PSP05-SW **Lab ID:** E193705-08
Station ID: PSP05 **Matrix:** Surface Water

Date Collected: 9/10/19 10:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	8.0		ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	5.3		ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	8.6		ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	6.2		ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C
75-01-4	Vinyl chloride	0.27	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 20:09	EPA 8260C

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Sample ID: PSP06-SW **Lab ID:** E193705-09
Station ID: PSP06 **Matrix:** Surface Water

Date Collected: 9/10/19 10:53

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	6.9		ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	6.0		ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	6.6		ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	6.2		ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 20:35	EPA 8260C

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Sample ID: PSP07-SW **Lab ID:** E193705-10
Station ID: PSP07 **Matrix:** Surface Water

Date Collected: 9/10/19 11:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	7.4		ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	6.6		ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	7.5		ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	7.1		ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:01	EPA 8260C

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Sample ID: PSP08-SW **Lab ID:** E193705-11
Station ID: PSP08 **Matrix:** Surface Water

Date Collected: 9/10/19 9:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	28		ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	17		ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	44		ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	24		ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C
75-01-4	Vinyl chloride	1.2		ug/L	0.50	9/16/19 15:18	9/16/19 21:28	EPA 8260C

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Sample ID: PSP09-SW **Lab ID:** E193705-12
Station ID: PSP09 **Matrix:** Surface Water

Date Collected: 9/10/19 8:41

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	24		ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	15		ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	36		ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	20		ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C
75-01-4	Vinyl chloride	1.1		ug/L	0.50	9/16/19 15:18	9/16/19 16:39	EPA 8260C

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Sample ID: PSP10-GW **Lab ID:** E193705-13
Station ID: PSP10 **Matrix:** Groundwater

Date Collected: 9/11/19 16:48

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.13	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.14	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 21:54	EPA 8260C

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Sample ID: PSP10-SF **Lab ID:** E193705-14
Station ID: PSP10 **Matrix:** Surface Soil

Date Collected: 9/11/19 11:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C
75-01-4	Vinyl chloride	0.79	U, J, QI-1	ug/kg dry	0.79	9/12/19 14:41	9/16/19 18:34	EPA 8260C

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Sample ID: PSP10-SF
Lab ID: E193705-14
Station ID: PSP10
Matrix: Surface Soil

Date Collected: 9/11/19 11:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

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Sample ID: PSP11-SF **Lab ID:** E193705-15
Station ID: PSP11 **Matrix:** Surface Soil

Date Collected: 9/11/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C
75-01-4	Vinyl chloride	0.92	U	ug/kg dry	0.92	9/12/19 14:44	9/16/19 19:01	EPA 8260C

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Sample ID: PSP11-SF
Lab ID: E193705-15
Station ID: PSP11
Matrix: Surface Soil

Date Collected: 9/11/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	82		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

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Sample ID: PSP11-SF-DUP **Lab ID:** E193705-16

Station ID: PSP11 **Matrix:** Surface Soil

Date Collected: 9/11/19 11:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C
75-01-4	Vinyl chloride	0.85	U	ug/kg dry	0.85	9/12/19 14:48	9/16/19 19:28	EPA 8260C

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Sample ID: PSP11-SF-DUP **Lab ID:** E193705-16
Station ID: PSP11 **Matrix:** Surface Soil

Date Collected: 9/11/19 11:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	85		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

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Sample ID: PSP12-GW **Lab ID:** E193705-17
Station ID: PSP12 **Matrix:** Groundwater

Date Collected: 9/11/19 16:21

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.29	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.18	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:20	EPA 8260C

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP12-SF **Lab ID:** E193705-18
Station ID: PSP12 **Matrix:** Surface Soil

Date Collected: 9/11/19 10:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C
75-01-4	Vinyl chloride	0.80	U	ug/kg dry	0.80	9/12/19 14:52	9/16/19 19:55	EPA 8260C

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Physical Properties

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP12-SF
Lab ID: E193705-18
Station ID: PSP12
Matrix: Surface Soil

Date Collected: 9/11/19 10:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	93		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-SF **Lab ID:** E193705-19
Station ID: PSP13 **Matrix:** Surface Soil

Date Collected: 9/11/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C
75-01-4	Vinyl chloride	0.87	U	ug/kg dry	0.87	9/12/19 14:57	9/16/19 16:45	EPA 8260C

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Physical Properties

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-SF **Lab ID:** E193705-19
Station ID: PSP13 **Matrix:** Surface Soil

Date Collected: 9/11/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	84		%	0.0	10/08/19 14:30	10/09/19 8:40	EPA 200.2

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP22-SEEP **Lab ID: E193705-20**

Station ID: PSP22 **Matrix: Surface Water**

Date Collected: 9/10/19 11:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.25	J, Q-2	ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	2.8		ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.0		ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	2.1		ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 22:46	EPA 8260C

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP-EB-01 **Lab ID:** E193707-01

Station ID: **Matrix:** Equipment Rinse Blank

Date Collected: 9/12/19 17:14

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:08	EPA 8260C

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP-TB-03 **Lab ID:** E193707-02
Station ID: **Matrix:** Trip Blank - Water

Date Collected: 9/12/19 17:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 15:35	EPA 8260C

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP11-GW **Lab ID:** E193707-03
Station ID: PSP11 **Matrix:** Groundwater

Date Collected: 9/12/19 14:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:13	EPA 8260C

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-GW **Lab ID:** E193707-04
Station ID: PSP13 **Matrix:** Groundwater

Date Collected: 9/12/19 15:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/16/19 15:18	9/16/19 23:39	EPA 8260C

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP17-GW **Lab ID:** E193707-05
Station ID: PSP17 **Matrix:** Groundwater

Date Collected: 9/12/19 14:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	110		ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	140		ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	460		ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	5.0	U	ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	640		ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C
75-01-4	Vinyl chloride	5.0	U	ug/L	5.0	9/18/19 11:38	9/18/19 18:38	EPA 8260C

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP24-GW **Lab ID:** E193707-06
Station ID: PSP24 **Matrix:** Groundwater

Date Collected: 9/12/19 13:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:01	EPA 8260C

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP24-GW-DUP **Lab ID:** E193707-07
Station ID: PSP24 **Matrix:** Groundwater

Date Collected: 9/12/19 13:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	9/18/19 11:38	9/18/19 16:27	EPA 8260C

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP25-GW **Lab ID:** E193707-08
Station ID: PSP25 **Matrix:** Groundwater

Date Collected: 9/12/19 9:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	220		ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	74		ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	140		ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	2.5	U	ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	120		ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C
75-01-4	Vinyl chloride	2.5	U	ug/L	2.5	9/18/19 11:38	9/18/19 18:12	EPA 8260C

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909024 - V 5035 VOA Soil and Waste Prep										
Blank (1909024-BLK1)				Prepared: 09/14/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	1.0	ug/kg wet							U
cis-1,2-Dichloroethene	U	1.0	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.0	"							U
trans-1,2-Dichloroethene	U	1.0	"							U
Trichloroethene (Trichloroethylene)	U	1.0	"							U
Vinyl chloride	U	1.0	"							U
Blank (1909024-BLK2)				Prepared: 09/12/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	1.0	ug/kg wet							U
cis-1,2-Dichloroethene	U	1.0	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.0	"							U
trans-1,2-Dichloroethene	U	1.0	"							U
Trichloroethene (Trichloroethylene)	U	1.0	"							U
Vinyl chloride	U	1.0	"							U
LCS (1909024-BS1)				Prepared: 09/14/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	19.460		ug/kg	20.000		97.3	78.3-131			
cis-1,2-Dichloroethene	22.560		"	20.000		113	84.2-122			
Tetrachloroethene (Tetrachloroethylene)	20.020		"	20.000		100	80.8-125			
trans-1,2-Dichloroethene	22.390		"	20.000		112	83.4-123			
Trichloroethene (Trichloroethylene)	22.050		"	20.000		110	82.6-128			
Vinyl chloride	21.610		"	20.000		108	62.8-145			
Matrix Spike (1909024-MS1)		**Source: E193705-19**		Prepared: 09/12/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	25.930		ug/kg	20.000	0.0000	130	33.1-141			
cis-1,2-Dichloroethene	23.960		"	20.000	0.0000	120	36.8-126			
Tetrachloroethene (Tetrachloroethylene)	16.690		"	20.000	0.0000	83.4	41-116			
trans-1,2-Dichloroethene	25.350		"	20.000	0.0000	127	31.2-129			
Trichloroethene (Trichloroethylene)	24.180		"	20.000	0.0000	121	23-125			
Vinyl chloride	23.900		"	20.000	0.0000	120	25.4-146			

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909024 - V 5035 VOA Soil and Waste Prep										
Matrix Spike Dup (1909024-MSD1)	**Source: E193705-19**			Prepared: 09/12/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	28.870		ug/kg	20.000	0.0000	144	33.1-141	10.7	42.2	QM-2
cis-1,2-Dichloroethene	24.440		"	20.000	0.0000	122	36.8-126	1.98	49	
Tetrachloroethene (Tetrachloroethylene)	22.650		"	20.000	0.0000	113	41-116	30.3	51.7	
trans-1,2-Dichloroethene	17.300		"	20.000	0.0000	86.5	31.2-129	37.7	47.3	
Trichloroethene (Trichloroethylene)	25.090		"	20.000	0.0000	125	23-125	3.69	47.1	
Vinyl chloride	26.480		"	20.000	0.0000	132	25.4-146	10.2	33.1	
MRL Verification (1909024-PS1)				Prepared: 09/14/19 Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.99000		ug/kg	1.0000		99.0	58.3-151			MRL-3
cis-1,2-Dichloroethene	0.95000		"	1.0000		95.0	64.2-142			MRL-3
Tetrachloroethene (Tetrachloroethylene)	1.0300		"	1.0000		103	60.8-145			MRL-3
trans-1,2-Dichloroethene	0.83000		"	1.0000		83.0	63.4-143			MRL-3
Trichloroethene (Trichloroethylene)	0.99000		"	1.0000		99.0	62.6-148			MRL-3
Vinyl chloride	0.96000		"	1.0000		96.0	42.8-165			MRL-3
Batch 1909029 - V 5030B VOA Wtr Prep										
Blank (1909029-BLK1)				Prepared & Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.50	ug/L							U
cis-1,2-Dichloroethene	U	0.50	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.50	"							U
trans-1,2-Dichloroethene	U	0.50	"							U
Trichloroethene (Trichloroethylene)	U	0.50	"							U
Vinyl chloride	U	0.50	"							U
LCS (1909029-BS1)				Prepared & Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	19.750		ug/L	20.000		98.8	85.4-116			
cis-1,2-Dichloroethene	19.160		"	20.000		95.8	87.6-115			
Tetrachloroethene (Tetrachloroethylene)	19.430		"	20.000		97.2	85.1-113			
trans-1,2-Dichloroethene	19.070		"	20.000		95.4	86.6-114			
Trichloroethene (Trichloroethylene)	18.840		"	20.000		94.2	87.8-114			
Vinyl chloride	19.000		"	20.000		95.0	78.8-115			

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909029 - V 5030B VOA Wtr Prep										
Matrix Spike (1909029-MS1)	**Source: E193705-12**			Prepared & Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	34.840		ug/L	10.233	24.040	106	87.5-133			
cis-1,2-Dichloroethene	25.620		"	10.233	14.800	106	85.3-127			
Tetrachloroethene (Tetrachloroethylene)	46.760		"	10.233	35.610	109	66.4-149			
trans-1,2-Dichloroethene	10.610		"	10.233	0.0000	104	86.8-128			
Trichloroethene (Trichloroethylene)	29.920		"	10.233	19.780	99.1	87.2-128			
Vinyl chloride	12.150		"	10.233	1.0900	108	84.5-135			
Matrix Spike Dup (1909029-MSD1)	**Source: E193705-12**			Prepared & Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	36.550		ug/L	10.233	24.040	122	87.5-133	4.79	12.8	
cis-1,2-Dichloroethene	26.720		"	10.233	14.800	116	85.3-127	4.20	10.8	
Tetrachloroethene (Tetrachloroethylene)	44.630		"	10.233	35.610	88.1	66.4-149	4.66	13.4	
trans-1,2-Dichloroethene	10.790		"	10.233	0.0000	105	86.8-128	1.68	11	
Trichloroethene (Trichloroethylene)	29.960		"	10.233	19.780	99.5	87.2-128	0.134	15	
Vinyl chloride	12.440		"	10.233	1.0900	111	84.5-135	2.36	14.1	
MRL Verification (1909029-PS1)				Prepared & Analyzed: 09/16/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.1200		ug/L	2.0000		106	65.4-136			
cis-1,2-Dichloroethene	1.9700		"	2.0000		98.5	67.6-135			
Tetrachloroethene (Tetrachloroethylene)	1.8900		"	2.0000		94.5	65.1-133			
trans-1,2-Dichloroethene	1.9500		"	2.0000		97.5	66.6-134			
Trichloroethene (Trichloroethylene)	1.9200		"	2.0000		96.0	67.8-134			
Vinyl chloride	2.2100		"	2.0000		110	58.8-135			
Batch 1909041 - V 5030B VOA Wtr Prep										
Blank (1909041-BLK1)				Prepared & Analyzed: 09/18/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.50	ug/L							U
cis-1,2-Dichloroethene	U	0.50	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.50	"							U
trans-1,2-Dichloroethene	U	0.50	"							U
Trichloroethene (Trichloroethylene)	U	0.50	"							U
Vinyl chloride	U	0.50	"							U

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909041 - V 5030B VOA Wtr Prep										
LCS (1909041-BS1)				Prepared & Analyzed: 09/18/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	20.960		ug/L	20.000		105	85.4-116			
cis-1,2-Dichloroethene	21.030		"	20.000		105	87.6-115			
Tetrachloroethene (Tetrachloroethylene)	19.620		"	20.000		98.1	85.1-113			
trans-1,2-Dichloroethene	20.370		"	20.000		102	86.6-114			
Trichloroethene (Trichloroethylene)	18.050		"	20.000		90.2	87.8-114			
Vinyl chloride	19.450		"	20.000		97.2	78.8-115			
Matrix Spike (1909041-MS1)		**Source: E193707-07**		Prepared & Analyzed: 09/18/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	11.960		ug/L	10.233	0.0000	117	87.5-133			
cis-1,2-Dichloroethene	10.940		"	10.233	0.0000	107	85.3-127			
Tetrachloroethene (Tetrachloroethylene)	11.470		"	10.233	0.0000	112	66.4-149			
trans-1,2-Dichloroethene	10.930		"	10.233	0.0000	107	86.8-128			
Trichloroethene (Trichloroethylene)	9.9400		"	10.233	0.0000	97.1	87.2-128			
Vinyl chloride	10.670		"	10.233	0.0000	104	84.5-135			
Matrix Spike Dup (1909041-MSD1)		**Source: E193707-07**		Prepared & Analyzed: 09/18/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	11.500		ug/L	10.233	0.0000	112	87.5-133	3.92	12.8	
cis-1,2-Dichloroethene	10.610		"	10.233	0.0000	104	85.3-127	3.06	10.8	
Tetrachloroethene (Tetrachloroethylene)	11.470		"	10.233	0.0000	112	66.4-149	0.00	13.4	
trans-1,2-Dichloroethene	11.020		"	10.233	0.0000	108	86.8-128	0.820	11	
Trichloroethene (Trichloroethylene)	10.190		"	10.233	0.0000	99.6	87.2-128	2.48	15	
Vinyl chloride	10.080		"	10.233	0.0000	98.5	84.5-135	5.69	14.1	
MRL Verification (1909041-PS1)				Prepared & Analyzed: 09/18/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.54000		ug/L	0.50000		108	65.4-136			MRL-2
cis-1,2-Dichloroethene	0.45000		"	0.50000		90.0	67.6-135			MRL-2
Tetrachloroethene (Tetrachloroethylene)	0.52000		"	0.50000		104	65.1-133			MRL-2
trans-1,2-Dichloroethene	0.48000		"	0.50000		96.0	66.6-134			MRL-2
Trichloroethene (Trichloroethylene)	0.53000		"	0.50000		106	67.8-134			MRL-2
Vinyl chloride	0.54000		"	0.50000		108	58.8-135			MRL-2

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Physical Properties (PHYSP) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1910028 - M % Solids										
Duplicate (1910028-DUP1)		**Source: E193705-19**		Prepared: 10/08/19 Analyzed: 10/09/19						
EPA 200.2										
% Solids	84.114	0.0	%		84.145			0.0368	10	

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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
MRL-2	MRL verification for Non-Potable Water matrix
MRL-3	MRL verification for Soil matrix
QM-2	Matrix Spike Recovery greater than method control limits

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December 17, 2019

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 19-0323, Patterson Street Solvent Plume

FROM: Jeffrey Hendel
LSB Organic Chemistry Section Chief

THRU: Sandra Aker, Chief
Laboratory Services Branch

TO: Cathy Amoroso

This report is being reissued to correct sample descriptive information that was not accepted by the Region 4 Data Archival and ReTrieval (D.A.R.T.) system. Some or all of these results were previously reported. Please substitute the corrected results for those results previously reported. Please refer to the Report Narrative for more details.

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO

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Report Narrative for Project: 19-0323

11/19/19 KT VOA Soil and Water: This data has been reissued to include only those analytes requested by the project leader. This report replaces E193705, E193707 PHYS VOA FINAL 10 15 19 1802.pdf.

Report Narrative for Work Order: E193801

This report is being re-released since sample station IDs have been updated as requested by the project lead. No analytical results were affected. This report replaces Project 19-0323, E193801 VOA 10 01 19 0955.

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

cc: Nardina Turner

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SAMPLES INCLUDED IN THIS REPORT

Project: 19-0323, Patterson Street Solvent Plume

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
PSP10-AA	E193801-01	Ambient Air	9/11/19 14:42	9/13/19 16:28
PSP10-AA-DUP	E193801-02	Ambient Air	9/11/19 14:42	9/13/19 16:28
PSP10-SG	E193801-03	Soil Gas	9/12/19 17:52	9/13/19 16:28
PSP11-AA	E193801-04	Ambient Air	9/10/19 14:06	9/13/19 16:28
PSP11-SG	E193801-05	Soil Gas	9/12/19 18:38	9/13/19 16:28
PSP12-AA	E193801-06	Ambient Air	9/10/19 15:37	9/13/19 16:28
PSP12-SG	E193801-07	Soil Gas	9/13/19 11:00	9/13/19 16:28
PSP13-AA	E193801-08	Ambient Air	9/10/19 15:01	9/13/19 16:28
PSP13-SG	E193801-09	Soil Gas	9/13/19 09:30	9/13/19 16:28
PSP13-SG-SPLIT	E193801-10	Soil Gas	9/13/19 09:30	9/13/19 16:28
PSP14-SG	E193801-11	Soil Gas	9/12/19 13:56	9/13/19 16:28
PSP15-SG	E193801-12	Soil Gas	9/12/19 12:28	9/13/19 16:28
PSP16-AA	E193801-13	Ambient Air	9/10/19 15:36	9/13/19 16:28
PSP16-SG	E193801-14	Soil Gas	9/12/19 16:56	9/13/19 16:28
PSP19-SG	E193801-15	Soil Gas	9/12/19 13:11	9/13/19 16:28
PSP20-SG	E193801-16	Soil Gas	9/12/19 15:53	9/13/19 16:28
PSP21-AA	E193801-17	Ambient Air	9/10/19 14:13	9/13/19 16:28
PSP21-SG	E193801-18	Soil Gas	9/12/19 11:35	9/13/19 16:28
PSP24-AA	E193801-19	Ambient Air	9/10/19 15:30	9/13/19 16:28
PSP24-SG	E193801-20	Soil Gas	9/13/19 10:16	9/13/19 16:28
PSP25-SG	E193801-21	Soil Gas	9/12/19 14:55	9/13/19 16:28
PSP26-AA	E193801-22	Ambient Air	9/11/19 14:47	9/13/19 16:28
PSP27-SG	E193801-23	Soil Gas	9/13/19 08:11	9/13/19 16:28
PSP28-AA	E193801-24	Ambient Air	9/10/19 15:03	9/13/19 16:28
PSP28-SG	E193801-25	Soil Gas	9/13/19 07:26	9/13/19 16:28

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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
D-4	MRL elevated due to interferences.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
QI-1	Internal standard was outside of method control limits.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP10-AA **Lab ID:** E193801-01
Station ID: PSP10 **Matrix:** Ambient Air

Date Collected: 9/11/19 14:42

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.55		ug/m3	0.23	9/16/19 11:32	9/17/19 18:20	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.36		ug/m3	0.21	9/16/19 11:32	9/17/19 18:20	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.90		ug/m3	0.36	9/16/19 11:32	9/17/19 18:20	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:32	9/17/19 18:20	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.63		ug/m3	0.29	9/16/19 11:32	9/17/19 18:20	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:32	9/17/19 18:20	EPA TO-15

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP10-AA-DUP **Lab ID:** E193801-02
Station ID: PSP10 **Matrix:** Ambient Air

Date Collected: 9/11/19 14:42

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.54		ug/m3	0.23	9/16/19 11:36	9/17/19 20:03	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.34		ug/m3	0.21	9/16/19 11:36	9/17/19 20:03	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.2		ug/m3	0.37	9/16/19 11:36	9/17/19 20:03	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.40		ug/m3	0.21	9/16/19 11:36	9/17/19 20:03	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.66		ug/m3	0.29	9/16/19 11:36	9/17/19 20:03	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:36	9/17/19 20:03	EPA TO-15

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP10-SG **Lab ID:** E193801-03
Station ID: PSP10 **Matrix:** Soil Gas

Date Collected: 9/12/19 17:52

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.13	J, Q-2	ug/m3	0.22	9/16/19 9:49	9/21/19 8:44	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 9:49	9/21/19 8:44	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.1		ug/m3	0.34	9/16/19 9:49	9/21/19 8:44	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 9:49	9/21/19 8:44	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.64		ug/m3	0.27	9/16/19 9:49	9/21/19 8:44	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 9:49	9/21/19 8:44	EPA TO-15

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP11-AA **Lab ID:** E193801-04
Station ID: PSP11 **Matrix:** Ambient Air

Date Collected: 9/10/19 14:06

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.20	J, Q-2	ug/m3	0.24	9/16/19 11:39	9/17/19 20:54	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.13	J, Q-2	ug/m3	0.22	9/16/19 11:39	9/17/19 20:54	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.38		ug/m3	0.37	9/16/19 11:39	9/17/19 20:54	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 11:39	9/17/19 20:54	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.21	J, Q-2	ug/m3	0.30	9/16/19 11:39	9/17/19 20:54	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:39	9/17/19 20:54	EPA TO-15

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP11-SG **Lab ID:** E193801-05
Station ID: PSP11 **Matrix:** Soil Gas

Date Collected: 9/12/19 18:38

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.31		ug/m3	0.22	9/16/19 12:11	9/21/19 9:35	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.12	J, Q-2	ug/m3	0.20	9/16/19 12:11	9/21/19 9:35	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.0		ug/m3	0.35	9/16/19 12:11	9/21/19 9:35	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 12:11	9/21/19 9:35	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.36		ug/m3	0.28	9/16/19 12:11	9/21/19 9:35	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 12:11	9/21/19 9:35	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP12-AA **Lab ID:** E193801-06
Station ID: PSP12 **Matrix:** Ambient Air

Date Collected: 9/10/19 15:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.0		ug/m3	0.23	9/16/19 11:42	9/17/19 19:11	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.59		ug/m3	0.21	9/16/19 11:42	9/17/19 19:11	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.5		ug/m3	0.36	9/16/19 11:42	9/17/19 19:11	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:42	9/17/19 19:11	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.92		ug/m3	0.28	9/16/19 11:42	9/17/19 19:11	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 11:42	9/17/19 19:11	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP12-SG **Lab ID:** E193801-07
Station ID: PSP12 **Matrix:** Soil Gas

Date Collected: 9/13/19 11:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.21	U	ug/m3	0.21	9/16/19 12:14	9/21/19 10:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.19	U	ug/m3	0.19	9/16/19 12:14	9/21/19 10:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	9.5		ug/m3	0.33	9/16/19 12:14	9/21/19 10:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.19	U	ug/m3	0.19	9/16/19 12:14	9/21/19 10:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.26	U	ug/m3	0.26	9/16/19 12:14	9/21/19 10:27	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 12:14	9/21/19 10:27	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-AA **Lab ID:** E193801-08
Station ID: PSP13 **Matrix:** Ambient Air

Date Collected: 9/10/19 15:01

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.34		ug/m3	0.24	9/16/19 11:46	9/17/19 22:36	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	J, Q-2	ug/m3	0.22	9/16/19 11:46	9/17/19 22:36	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.67		ug/m3	0.38	9/16/19 11:46	9/17/19 22:36	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 11:46	9/17/19 22:36	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.35		ug/m3	0.30	9/16/19 11:46	9/17/19 22:36	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:46	9/17/19 22:36	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-SG **Lab ID:** E193801-09
Station ID: PSP13 **Matrix:** Soil Gas

Date Collected: 9/13/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.39		ug/m3	0.24	9/16/19 12:17	9/21/19 11:18	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.097	J, Q-2	ug/m3	0.22	9/16/19 12:17	9/21/19 11:18	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.64		ug/m3	0.37	9/16/19 12:17	9/21/19 11:18	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 12:17	9/21/19 11:18	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.33		ug/m3	0.29	9/16/19 12:17	9/21/19 11:18	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 12:17	9/21/19 11:18	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP13-SG-SPLIT **Lab ID:** E193801-10

Station ID: PSP13 **Matrix:** Soil Gas

Date Collected: 9/13/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.39		ug/m3	0.24	9/16/19 12:20	9/18/19 23:15	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.13	J, Q-2	ug/m3	0.22	9/16/19 12:20	9/18/19 23:15	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.66		ug/m3	0.37	9/16/19 12:20	9/18/19 23:15	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 12:20	9/18/19 23:15	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.36		ug/m3	0.29	9/16/19 12:20	9/18/19 23:15	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 12:20	9/18/19 23:15	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP14-SG **Lab ID:** E193801-11
Station ID: PSP14 **Matrix:** Soil Gas

Date Collected: 9/12/19 13:56

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	700		ug/m3	2.3	9/16/19 12:23	9/18/19 21:35	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	740		ug/m3	2.1	9/16/19 12:23	9/18/19 21:35	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3600		ug/m3	3.5	9/16/19 12:23	9/18/19 21:35	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	11		ug/m3	2.1	9/16/19 12:23	9/18/19 21:35	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3300		ug/m3	2.8	9/16/19 12:23	9/18/19 21:35	EPA TO-15
75-01-4	Vinyl chloride	35		ug/m3	1.3	9/16/19 12:23	9/18/19 21:35	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP15-SG **Lab ID:** E193801-12
Station ID: PSP15 **Matrix:** Soil Gas

Date Collected: 9/12/19 12:28

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.2	U, D-4	ug/m3	1.2	9/16/19 12:26	9/18/19 14:25	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 12:26	9/18/19 14:25	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5		ug/m3	0.35	9/16/19 12:26	9/18/19 14:25	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 12:26	9/18/19 14:25	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.37		ug/m3	0.28	9/16/19 12:26	9/18/19 14:25	EPA TO-15
75-01-4	Vinyl chloride	0.72		ug/m3	0.13	9/16/19 12:26	9/18/19 14:25	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP16-AA **Lab ID:** E193801-13
Station ID: PSP16 **Matrix:** Ambient Air

Date Collected: 9/10/19 15:36

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.23	U	ug/m3	0.23	9/16/19 11:48	9/17/19 23:28	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:48	9/17/19 23:28	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.21	J, Q-2	ug/m3	0.36	9/16/19 11:48	9/17/19 23:28	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:48	9/17/19 23:28	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.099	J, Q-2	ug/m3	0.29	9/16/19 11:48	9/17/19 23:28	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:48	9/17/19 23:28	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP16-SG **Lab ID:** E193801-14
Station ID: PSP16 **Matrix:** Soil Gas

Date Collected: 9/12/19 16:56

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	3.0		ug/m3	0.23	9/16/19 12:29	9/18/19 20:07	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:29	9/18/19 20:07	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	190		ug/m3	0.35	9/16/19 12:29	9/18/19 20:07	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:29	9/18/19 20:07	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.42		ug/m3	0.28	9/16/19 12:29	9/18/19 20:07	EPA TO-15
75-01-4	Vinyl chloride	12		ug/m3	0.13	9/16/19 12:29	9/18/19 20:07	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP19-SG **Lab ID:** E193801-15

Station ID: PSP19 **Matrix:** Soil Gas

Date Collected: 9/12/19 13:11

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	3.6	U, D-4	ug/m3	3.6	9/16/19 12:31	9/19/19 0:06	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.23	U	ug/m3	0.23	9/16/19 12:31	9/19/19 0:06	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.8		ug/m3	0.39	9/16/19 12:31	9/19/19 0:06	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.23	U	ug/m3	0.23	9/16/19 12:31	9/19/19 0:06	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.1		ug/m3	0.31	9/16/19 12:31	9/19/19 0:06	EPA TO-15
75-01-4	Vinyl chloride	4.1		ug/m3	0.15	9/16/19 12:31	9/19/19 0:06	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP20-SG **Lab ID:** E193801-16
Station ID: PSP20 **Matrix:** Soil Gas

Date Collected: 9/12/19 15:53

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	150		ug/m3	0.22	9/16/19 12:34	9/18/19 20:51	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	17		ug/m3	0.21	9/16/19 12:34	9/18/19 20:51	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	340		ug/m3	0.35	9/16/19 12:34	9/18/19 20:51	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	4.5		ug/m3	0.21	9/16/19 12:34	9/18/19 20:51	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	330		ug/m3	0.28	9/16/19 12:34	9/18/19 20:51	EPA TO-15
75-01-4	Vinyl chloride	3.1		ug/m3	0.13	9/16/19 12:34	9/18/19 20:51	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP21-AA **Lab ID:** E193801-17
Station ID: PSP21 **Matrix:** Ambient Air

Date Collected: 9/10/19 14:13

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.56		ug/m3	0.24	9/16/19 11:52	9/18/19 0:19	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.40		ug/m3	0.22	9/16/19 11:52	9/18/19 0:19	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.1		ug/m3	0.38	9/16/19 11:52	9/18/19 0:19	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 11:52	9/18/19 0:19	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.2		ug/m3	0.30	9/16/19 11:52	9/18/19 0:19	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:52	9/18/19 0:19	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP21-SG **Lab ID:** E193801-18
Station ID: PSP21 **Matrix:** Soil Gas

Date Collected: 9/12/19 11:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.14	J, Q-2	ug/m3	0.22	9/16/19 12:37	9/20/19 8:38	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 12:37	9/20/19 8:38	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	7.4		ug/m3	0.35	9/16/19 12:37	9/20/19 8:38	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	9/16/19 12:37	9/20/19 8:38	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.25	J, Q-2	ug/m3	0.27	9/16/19 12:37	9/20/19 8:38	EPA TO-15
75-01-4	Vinyl chloride	0.59		ug/m3	0.13	9/16/19 12:37	9/20/19 8:38	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP24-AA **Lab ID:** E193801-19

Station ID: PSP24 **Matrix:** Ambient Air

Date Collected: 9/10/19 15:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.27		ug/m3	0.23	9/16/19 11:54	9/18/19 1:10	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.16	J, Q-2	ug/m3	0.21	9/16/19 11:54	9/18/19 1:10	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.86		ug/m3	0.36	9/16/19 11:54	9/18/19 1:10	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:54	9/18/19 1:10	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.31		ug/m3	0.28	9/16/19 11:54	9/18/19 1:10	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 11:54	9/18/19 1:10	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP24-SG **Lab ID:** E193801-20
Station ID: PSP24 **Matrix:** Soil Gas

Date Collected: 9/13/19 10:16

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.23	U	ug/m3	0.23	9/16/19 12:40	9/19/19 9:40	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 12:40	9/19/19 9:40	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.96		ug/m3	0.37	9/16/19 12:40	9/19/19 9:40	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 12:40	9/19/19 9:40	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.27	J, Q-2	ug/m3	0.29	9/16/19 12:40	9/19/19 9:40	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 12:40	9/19/19 9:40	EPA TO-15

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Volatile Organics

Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP25-SG **Lab ID:** E193801-21
Station ID: PSP25 **Matrix:** Soil Gas

Date Collected: 9/12/19 14:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	11		ug/m3	2.3	9/16/19 12:43	9/18/19 21:04	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	J, QI-1	ug/m3	0.21	9/16/19 12:43	9/21/19 13:52	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1200		ug/m3	3.6	9/16/19 12:43	9/18/19 21:04	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.46	J, QI-1	ug/m3	0.21	9/16/19 12:43	9/21/19 13:52	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	19		ug/m3	2.9	9/16/19 12:43	9/18/19 21:04	EPA TO-15
75-01-4	Vinyl chloride	0.14	U, J, QI-1	ug/m3	0.14	9/16/19 12:43	9/21/19 13:52	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP26-AA **Lab ID:** E193801-22
Station ID: PSP26 **Matrix:** Ambient Air

Date Collected: 9/11/19 14:47

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.60		ug/m3	0.23	9/16/19 11:57	9/18/19 2:02	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.22		ug/m3	0.21	9/16/19 11:57	9/18/19 2:02	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.65		ug/m3	0.36	9/16/19 11:57	9/18/19 2:02	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 11:57	9/18/19 2:02	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.52		ug/m3	0.29	9/16/19 11:57	9/18/19 2:02	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	9/16/19 11:57	9/18/19 2:02	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP27-SG **Lab ID:** E193801-23
Station ID: PSP27 **Matrix:** Soil Gas

Date Collected: 9/13/19 8:11

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	32		ug/m3	0.23	9/16/19 12:46	9/20/19 9:29	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:46	9/20/19 9:29	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	21		ug/m3	0.35	9/16/19 12:46	9/20/19 9:29	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:46	9/20/19 9:29	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3.1		ug/m3	0.28	9/16/19 12:46	9/20/19 9:29	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	9/16/19 12:46	9/20/19 9:29	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP28-AA **Lab ID: E193801-24**

Station ID: PSP28 **Matrix: Ambient Air**

Date Collected: 9/10/19 15:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	3.7		ug/m3	0.24	9/16/19 12:00	9/18/19 2:53	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1		ug/m3	0.22	9/16/19 12:00	9/18/19 2:53	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	6.6		ug/m3	0.38	9/16/19 12:00	9/18/19 2:53	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	9/16/19 12:00	9/18/19 2:53	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3.3		ug/m3	0.30	9/16/19 12:00	9/18/19 2:53	EPA TO-15
75-01-4	Vinyl chloride	0.16		ug/m3	0.14	9/16/19 12:00	9/18/19 2:53	EPA TO-15

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Project: 19-0323, Patterson Street Solvent Plume

Sample ID: PSP28-SG **Lab ID:** E193801-25
Station ID: PSP28 **Matrix:** Soil Gas

Date Collected: 9/13/19 7:26

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.1		ug/m3	0.23	9/16/19 12:48	9/19/19 10:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:48	9/19/19 10:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	6.0		ug/m3	0.36	9/16/19 12:48	9/19/19 10:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	9/16/19 12:48	9/19/19 10:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.33		ug/m3	0.29	9/16/19 12:48	9/19/19 10:27	EPA TO-15
75-01-4	Vinyl chloride	0.17		ug/m3	0.14	9/16/19 12:48	9/19/19 10:27	EPA TO-15

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Volatile Organics (VOA) - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909033 - V TO-15 Air Canister										
Blank (1909033-BLK1)				Prepared: 09/16/19 Analyzed: 09/17/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U
LCS (1909033-BS1)				Prepared: 09/03/19 Analyzed: 09/17/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4693		ppbv	2.4000		103	70-140			
cis-1,2-Dichloroethene	2.1872		"	2.2000		99.4	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.2343		"	2.2000		102	68-148			
trans-1,2-Dichloroethene	2.1855		"	2.2000		99.3	73-136			
Trichloroethene (Trichloroethylene)	2.3183		"	2.2000		105	69-137			
Vinyl chloride	2.1332		"	2.2000		97.0	62-151			
LCS Dup (1909033-BSD1)				Prepared: 09/03/19 Analyzed: 09/17/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4976		ppbv	2.4000		104	70-140	1.14	25	
cis-1,2-Dichloroethene	2.1711		"	2.2000		98.7	70-136	0.739	25	
Tetrachloroethene (Tetrachloroethylene)	2.2341		"	2.2000		102	68-148	0.0121	25	
trans-1,2-Dichloroethene	2.2556		"	2.2000		103	73-136	3.16	25	
Trichloroethene (Trichloroethylene)	2.2971		"	2.2000		104	69-137	0.920	25	
Vinyl chloride	2.1267		"	2.2000		96.7	62-151	0.306	25	
Duplicate (1909033-DUP1)		**Source: E193801-04**		Prepared: 09/16/19 Analyzed: 09/17/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.21801	0.24	ug/m3		0.20137			7.94	25	Q-2, J
cis-1,2-Dichloroethene	0.11460	0.22	"		0.13302			14.9	25	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	0.39103	0.37	"		0.38340			1.97	25	
trans-1,2-Dichloroethene	U	0.22	"		U				25	U
Trichloroethene (Trichloroethylene)	0.23867	0.30	"		0.21156			12.0	25	Q-2, J
Vinyl chloride	U	0.14	"		U				25	U

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909033 - V TO-15 Air Canister										
MRL Verification (1909033-PS3)				Prepared: 09/03/19 Analyzed: 09/17/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.024480		ppbv	0.024000		102	50-160			MRL-5
cis-1,2-Dichloroethene	0.026750		"	0.022000		122	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.021670		"	0.022000		98.5	50-150			MRL-5
trans-1,2-Dichloroethene	0.019190		"	0.022000		87.2	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.018680		"	0.022000		84.9	50-150			MRL-5
Vinyl chloride	0.018610		"	0.022000		84.6	50-150			MRL-5
Batch 1909034 - V TO-15 Air Canister										
Blank (1909034-BLK1)				Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U
Blank (1909034-BLK2)				Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.95	ug/m3							U
cis-1,2-Dichloroethene	U	0.87	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.5	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.2	"							U
Vinyl chloride	U	0.56	"							U
LCS (1909034-BS1)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4951		ppbv	2.4000		104	70-140			
cis-1,2-Dichloroethene	2.1405		"	2.2000		97.3	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.2931		"	2.2000		104	68-148			
trans-1,2-Dichloroethene	2.2160		"	2.2000		101	73-136			
Trichloroethene (Trichloroethylene)	2.3405		"	2.2000		106	69-137			
Vinyl chloride	2.1136		"	2.2000		96.1	62-151			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909034 - V TO-15 Air Canister										
LCS Dup (1909034-BSD1)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.5021		ppbv	2.4000		104	70-140	0.280	25	
cis-1,2-Dichloroethene	2.1863		"	2.2000		99.4	70-136	2.12	25	
Tetrachloroethene (Tetrachloroethylene)	2.2616		"	2.2000		103	68-148	1.38	25	
trans-1,2-Dichloroethene	2.2106		"	2.2000		100	73-136	0.244	25	
Trichloroethene (Trichloroethylene)	2.3227		"	2.2000		106	69-137	0.762	25	
Vinyl chloride	2.1345		"	2.2000		97.0	62-151	0.984	25	
Duplicate (1909034-DUP1)		**Source: E193801-23RE1**		Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	27.505	2.3	ug/m3		28.883			4.89	25	
cis-1,2-Dichloroethene	U	2.1	"		U				25	U
Tetrachloroethene (Tetrachloroethylene)	20.432	3.5	"		20.662			1.12	25	
trans-1,2-Dichloroethene	U	2.1	"		U				25	U
Trichloroethene (Trichloroethylene)	2.8583	2.8	"		2.8672			0.311	25	
Vinyl chloride	U	1.3	"		U				25	U
MRL Verification (1909034-PS3)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.023440		ppbv	0.024000		97.7	50-160			MRL-5
cis-1,2-Dichloroethene	0.016850		"	0.022000		76.6	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.022000		"	0.022000		100	50-150			MRL-5
trans-1,2-Dichloroethene	0.021610		"	0.022000		98.2	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.022170		"	0.022000		101	50-150			MRL-5
Vinyl chloride	0.020320		"	0.022000		92.4	50-150			MRL-5
Batch 1909040 - V TO-15 Air Canister										
Blank (1909040-BLK1)				Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909040 - V TO-15 Air Canister										
Blank (1909040-BLK2)				Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.95	ug/m3							U
cis-1,2-Dichloroethene	U	0.87	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.5	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.2	"							U
Vinyl chloride	U	0.56	"							U
LCS (1909040-BS1)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.6773		ppbv	2.4000		112	70-140			
cis-1,2-Dichloroethene	2.3034		"	2.2000		105	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.2538		"	2.2000		102	68-148			
trans-1,2-Dichloroethene	2.3452		"	2.2000		107	73-136			
Trichloroethene (Trichloroethylene)	2.3444		"	2.2000		107	69-137			
Vinyl chloride	2.5797		"	2.2000		117	62-151			
LCS Dup (1909040-BSD1)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.6506		ppbv	2.4000		110	70-140	0.999	25	
cis-1,2-Dichloroethene	2.2866		"	2.2000		104	70-136	0.731	25	
Tetrachloroethene (Tetrachloroethylene)	2.2768		"	2.2000		103	68-148	1.02	25	
trans-1,2-Dichloroethene	2.3228		"	2.2000		106	73-136	0.959	25	
Trichloroethene (Trichloroethylene)	2.3570		"	2.2000		107	69-137	0.533	25	
Vinyl chloride	2.6478		"	2.2000		120	62-151	2.60	25	
Duplicate (1909040-DUP1)			**Source: E193801-11RE1**	Prepared: 09/16/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	734.64	2.3	ug/m3		704.42			4.20	25	
cis-1,2-Dichloroethene	762.00	2.1	"		744.68			2.30	25	
Tetrachloroethene (Tetrachloroethylene)	3558.8	3.5	"		3568.3			0.269	25	
trans-1,2-Dichloroethene	11.573	2.1	"		11.481			0.798	25	
Trichloroethene (Trichloroethylene)	3303.4	2.8	"		3301.3			0.0615	25	
Vinyl chloride	33.748	1.3	"		34.580			2.43	25	

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909040 - V TO-15 Air Canister										
MRL Verification (1909040-PS2)				Prepared: 09/03/19 Analyzed: 09/18/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.032090		ppbv	0.024000		134	50-160			MRL-5
cis-1,2-Dichloroethene	0.027960		"	0.022000		127	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.028110		"	0.022000		128	50-150			MRL-5
trans-1,2-Dichloroethene	0.028180		"	0.022000		128	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.027460		"	0.022000		125	50-150			MRL-5
Vinyl chloride	0.029940		"	0.022000		136	50-150			MRL-5
Batch 1909042 - V TO-15 Air Canister										
Blank (1909042-BLK1)				Prepared: 09/16/19 Analyzed: 09/19/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U
LCS (1909042-BS1)				Prepared: 09/03/19 Analyzed: 09/19/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4006		ppbv	2.4000		100	70-140			
cis-1,2-Dichloroethene	2.0907		"	2.2000		95.0	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.3607		"	2.2000		107	68-148			
trans-1,2-Dichloroethene	2.1273		"	2.2000		96.7	73-136			
Trichloroethene (Trichloroethylene)	2.3778		"	2.2000		108	69-137			
Vinyl chloride	2.0128		"	2.2000		91.5	62-151			
LCS Dup (1909042-BSD1)				Prepared: 09/03/19 Analyzed: 09/19/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4633		ppbv	2.4000		103	70-140	2.58	25	
cis-1,2-Dichloroethene	2.1438		"	2.2000		97.4	70-136	2.51	25	
Tetrachloroethene (Tetrachloroethylene)	2.3667		"	2.2000		108	68-148	0.253	25	
trans-1,2-Dichloroethene	2.1359		"	2.2000		97.1	73-136	0.403	25	
Trichloroethene (Trichloroethylene)	2.3859		"	2.2000		108	69-137	0.338	25	
Vinyl chloride	2.0699		"	2.2000		94.1	62-151	2.80	25	

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909042 - V TO-15 Air Canister										
MRL Verification (1909042-PS1)				Prepared: 09/03/19 Analyzed: 09/19/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.022780		ppbv	0.024000		94.9	50-160			MRL-5
cis-1,2-Dichloroethene	0.022250		"	0.022000		101	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.026850		"	0.022000		122	50-150			MRL-5
trans-1,2-Dichloroethene	0.022860		"	0.022000		104	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.022330		"	0.022000		102	50-150			MRL-5
Vinyl chloride	0.020000		"	0.022000		90.9	50-150			MRL-5
Batch 1909045 - V TO-15 Air Canister										
Blank (1909045-BLK1)				Prepared: 09/20/19 Analyzed: 09/21/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U
LCS (1909045-BS1)				Prepared: 09/03/19 Analyzed: 09/21/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4009		ppbv	2.4000		100	70-140			
cis-1,2-Dichloroethene	2.0626		"	2.2000		93.8	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.5006		"	2.2000		114	68-148			
trans-1,2-Dichloroethene	2.0799		"	2.2000		94.5	73-136			
Trichloroethene (Trichloroethylene)	2.3951		"	2.2000		109	69-137			
Vinyl chloride	1.9203		"	2.2000		87.3	62-151			
LCS Dup (1909045-BSD1)				Prepared: 09/03/19 Analyzed: 09/21/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.4347		ppbv	2.4000		101	70-140	1.40	25	
cis-1,2-Dichloroethene	2.1146		"	2.2000		96.1	70-136	2.49	25	
Tetrachloroethene (Tetrachloroethylene)	2.4461		"	2.2000		111	68-148	2.20	25	
trans-1,2-Dichloroethene	2.1158		"	2.2000		96.2	73-136	1.71	25	
Trichloroethene (Trichloroethylene)	2.4026		"	2.2000		109	69-137	0.309	25	
Vinyl chloride	1.9890		"	2.2000		90.4	62-151	3.52	25	

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909045 - V TO-15 Air Canister										
Duplicate (1909045-DUP1)		**Source: E193801-09**		Prepared: 09/16/19 Analyzed: 09/21/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.39098	0.24	ug/m3		0.38901			0.505	25	
cis-1,2-Dichloroethene	0.11265	0.22	"		0.097376			14.5	25	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	0.63201	0.37	"		0.64297			1.72	25	J, QI-1
trans-1,2-Dichloroethene	U	0.22	"		U				25	U
Trichloroethene (Trichloroethylene)	0.33179	0.29	"		0.32658			1.58	25	J, QI-1
Vinyl chloride	U	0.14	"		U				25	U
MRL Verification (1909045-PS1)				Prepared: 09/03/19 Analyzed: 09/21/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.019980		ppbv	0.024000		83.2	50-160			MRL-5
cis-1,2-Dichloroethene	0.023640		"	0.022000		107	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.025310		"	0.022000		115	50-150			MRL-5
trans-1,2-Dichloroethene	0.021020		"	0.022000		95.5	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.020820		"	0.022000		94.6	50-150			MRL-5
Vinyl chloride	0.019120		"	0.022000		86.9	50-150			MRL-5

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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-5	MRL verification for Air matrix
Q-2	Result greater than MDL but less than MRL.
QI-1	Internal standard was outside of method control limits.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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December 16, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 20-0055, Patterson Street Solvent Plume

FROM: Kristin Trapp
OCS Analyst

THRU: Jeffrey Hendel, Chief
LSB Organic Chemistry Section

TO: Cathy Amoroso

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO

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Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

cc: Nardina Turner

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SAMPLES INCLUDED IN THIS REPORT

Project: 20-0055, Patterson Street Solvent Plume

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
PSP14-AA	E194902-02	Ambient Air	12/4/19 10:03	12/5/19 11:10
PSP14-CS	E194902-03	Crawlspace Air	12/4/19 10:03	12/5/19 11:10
PSP14-IA	E194902-04	Indoor Air	12/4/19 10:02	12/5/19 11:10
PSP20-AA	E194902-05	Ambient Air	12/4/19 08:04	12/5/19 11:10
PSP20-AA-DUP	E194902-06	Ambient Air	12/4/19 08:04	12/5/19 11:10
PSP20-CS	E194902-07	Crawlspace Air	12/4/19 08:04	12/5/19 11:10
PSP20-IA	E194902-08	Indoor Air	12/4/19 08:00	12/5/19 11:10
PSP22-AA	E194902-09	Ambient Air	12/4/19 10:05	12/5/19 11:10
PSP25-AA	E194902-10	Ambient Air	12/4/19 11:04	12/5/19 11:10
PSP25-CS	E194902-11	Crawlspace Air	12/4/19 11:03	12/5/19 11:10
PSP26-CS	E194902-12	Crawlspace Air	12/4/19 13:03	12/5/19 11:10
PSP29-AA	E194902-13	Ambient Air	12/4/19 18:21	12/5/19 11:10
PSP29-CS	E194902-14	Crawlspace Air	12/4/19 18:20	12/5/19 11:10
PSP30-CS	E194902-15	Crawlspace Air	12/4/19 11:05	12/5/19 11:10

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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP14-AA **Lab ID:** E194902-02
Station ID: PSP14 **Matrix:** Ambient Air

Date Collected: 12/4/19 10:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.33		ug/m3	0.22	12/05/19 16:04	12/10/19 6:08	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.11	J, Q-2	ug/m3	0.21	12/05/19 16:04	12/10/19 6:08	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.95		ug/m3	0.35	12/05/19 16:04	12/10/19 6:08	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:04	12/10/19 6:08	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.83		ug/m3	0.28	12/05/19 16:04	12/10/19 6:08	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	12/05/19 16:04	12/10/19 6:08	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP14-CS **Lab ID:** E194902-03
Station ID: PSP14 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 10:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.35		ug/m3	0.23	12/05/19 16:46	12/10/19 16:26	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.11	J, Q-2	ug/m3	0.21	12/05/19 16:46	12/10/19 16:26	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.6		ug/m3	0.36	12/05/19 16:46	12/10/19 16:26	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:46	12/10/19 16:26	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.98		ug/m3	0.29	12/05/19 16:46	12/10/19 16:26	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:46	12/10/19 16:26	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP14-IA **Lab ID:** E194902-04
Station ID: PSP14 **Matrix:** Indoor Air

Date Collected: 12/4/19 10:02

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.41		ug/m3	0.25	12/05/19 16:31	12/10/19 14:44	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.15	J, Q-2	ug/m3	0.23	12/05/19 16:31	12/10/19 14:44	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.1		ug/m3	0.39	12/05/19 16:31	12/10/19 14:44	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.23	U	ug/m3	0.23	12/05/19 16:31	12/10/19 14:44	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.93		ug/m3	0.31	12/05/19 16:31	12/10/19 14:44	EPA TO-15
75-01-4	Vinyl chloride	0.15	U	ug/m3	0.15	12/05/19 16:31	12/10/19 14:44	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP20-AA **Lab ID:** E194902-05
Station ID: PSP20 **Matrix:** Ambient Air

Date Collected: 12/4/19 8:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.25		ug/m3	0.23	12/05/19 16:09	12/10/19 7:00	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.16	J, Q-2	ug/m3	0.21	12/05/19 16:09	12/10/19 7:00	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.77		ug/m3	0.36	12/05/19 16:09	12/10/19 7:00	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:09	12/10/19 7:00	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.38		ug/m3	0.29	12/05/19 16:09	12/10/19 7:00	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:09	12/10/19 7:00	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP20-AA-DUP **Lab ID:** E194902-06
Station ID: PSP20 **Matrix:** Ambient Air

Date Collected: 12/4/19 8:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.25		ug/m3	0.23	12/05/19 16:14	12/10/19 7:51	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.12	J, Q-2	ug/m3	0.21	12/05/19 16:14	12/10/19 7:51	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.79		ug/m3	0.37	12/05/19 16:14	12/10/19 7:51	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:14	12/10/19 7:51	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.35		ug/m3	0.29	12/05/19 16:14	12/10/19 7:51	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:14	12/10/19 7:51	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP20-CS **Lab ID:** E194902-07
Station ID: PSP20 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 8:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.29		ug/m3	0.23	12/05/19 16:52	12/10/19 13:00	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.15	J, Q-2	ug/m3	0.21	12/05/19 16:52	12/10/19 13:00	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.8		ug/m3	0.37	12/05/19 16:52	12/10/19 13:00	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:52	12/10/19 13:00	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.34		ug/m3	0.29	12/05/19 16:52	12/10/19 13:00	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:52	12/10/19 13:00	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP20-IA **Lab ID:** E194902-08
Station ID: PSP20 **Matrix:** Indoor Air

Date Collected: 12/4/19 8:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.36		ug/m3	0.24	12/05/19 16:35	12/10/19 15:35	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.17	J, Q-2	ug/m3	0.22	12/05/19 16:35	12/10/19 15:35	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.6		ug/m3	0.38	12/05/19 16:35	12/10/19 15:35	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	12/05/19 16:35	12/10/19 15:35	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.38		ug/m3	0.30	12/05/19 16:35	12/10/19 15:35	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:35	12/10/19 15:35	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP22-AA **Lab ID:** E194902-09
Station ID: PSP22 **Matrix:** Ambient Air

Date Collected: 12/4/19 10:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.35		ug/m3	0.22	12/05/19 16:19	12/10/19 8:43	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.15	J, Q-2	ug/m3	0.21	12/05/19 16:19	12/10/19 8:43	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.99		ug/m3	0.35	12/05/19 16:19	12/10/19 8:43	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 16:19	12/10/19 8:43	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.96		ug/m3	0.28	12/05/19 16:19	12/10/19 8:43	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	12/05/19 16:19	12/10/19 8:43	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP25-AA **Lab ID:** E194902-10
Station ID: PSP25 **Matrix:** Ambient Air

Date Collected: 12/4/19 11:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.12	J, Q-2	ug/m3	0.22	12/05/19 16:24	12/10/19 10:26	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	U	ug/m3	0.20	12/05/19 16:24	12/10/19 10:26	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.24	J, Q-2	ug/m3	0.34	12/05/19 16:24	12/10/19 10:26	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	12/05/19 16:24	12/10/19 10:26	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.18	J, Q-2	ug/m3	0.27	12/05/19 16:24	12/10/19 10:26	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	12/05/19 16:24	12/10/19 10:26	EPA TO-15

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Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP25-CS **Lab ID:** E194902-11
Station ID: PSP25 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 11:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.23	J, Q-2	ug/m3	0.24	12/05/19 17:00	12/10/19 17:18	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.22	U	ug/m3	0.22	12/05/19 17:00	12/10/19 17:18	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.68		ug/m3	0.37	12/05/19 17:00	12/10/19 17:18	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.084	J, Q-2	ug/m3	0.22	12/05/19 17:00	12/10/19 17:18	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.25	J, Q-2	ug/m3	0.29	12/05/19 17:00	12/10/19 17:18	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 17:00	12/10/19 17:18	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP26-CS **Lab ID:** E194902-12
Station ID: PSP26 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 13:03

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.36		ug/m3	0.23	12/05/19 17:06	12/10/19 13:52	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.11	J, Q-2	ug/m3	0.21	12/05/19 17:06	12/10/19 13:52	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.81		ug/m3	0.36	12/05/19 17:06	12/10/19 13:52	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.21	U	ug/m3	0.21	12/05/19 17:06	12/10/19 13:52	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.68		ug/m3	0.29	12/05/19 17:06	12/10/19 13:52	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 17:06	12/10/19 13:52	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP29-AA **Lab ID:** E194902-13
Station ID: PSP29 **Matrix:** Ambient Air

Date Collected: 12/4/19 18:21

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.20	J, Q-2	ug/m3	0.24	12/05/19 16:27	12/10/19 11:17	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.22	U	ug/m3	0.22	12/05/19 16:27	12/10/19 11:17	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.46		ug/m3	0.38	12/05/19 16:27	12/10/19 11:17	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.22	U	ug/m3	0.22	12/05/19 16:27	12/10/19 11:17	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.39		ug/m3	0.30	12/05/19 16:27	12/10/19 11:17	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 16:27	12/10/19 11:17	EPA TO-15

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Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP29-CS **Lab ID:** E194902-14
Station ID: PSP29 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 18:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.8		ug/m3	0.23	12/05/19 17:12	12/10/19 18:09	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.095	J, Q-2	ug/m3	0.21	12/05/19 17:12	12/10/19 18:09	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	1.8		ug/m3	0.36	12/05/19 17:12	12/10/19 18:09	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.11	J, Q-2	ug/m3	0.21	12/05/19 17:12	12/10/19 18:09	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.1		ug/m3	0.29	12/05/19 17:12	12/10/19 18:09	EPA TO-15
75-01-4	Vinyl chloride	0.14	U	ug/m3	0.14	12/05/19 17:12	12/10/19 18:09	EPA TO-15

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP30-CS **Lab ID:** E194902-15
Station ID: PSP30 **Matrix:** Crawlspace Air

Date Collected: 12/4/19 11:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.23		ug/m3	0.22	12/05/19 17:16	12/10/19 19:01	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.20	U	ug/m3	0.20	12/05/19 17:16	12/10/19 19:01	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.51		ug/m3	0.35	12/05/19 17:16	12/10/19 19:01	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	0.20	U	ug/m3	0.20	12/05/19 17:16	12/10/19 19:01	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.44		ug/m3	0.28	12/05/19 17:16	12/10/19 19:01	EPA TO-15
75-01-4	Vinyl chloride	0.13	U	ug/m3	0.13	12/05/19 17:16	12/10/19 19:01	EPA TO-15

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912018 - V TO-15 Air Canister										
Blank (1912018-BLK1)				Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.095	ug/m3							U
cis-1,2-Dichloroethene	U	0.087	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.15	"							U
trans-1,2-Dichloroethene	U	0.087	"							U
Trichloroethene (Trichloroethylene)	U	0.12	"							U
Vinyl chloride	U	0.056	"							U
LCS (1912018-BS1)				Prepared: 12/05/19 Analyzed: 12/09/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.2555		ppbv	2.4000		94.0	70-140			
cis-1,2-Dichloroethene	2.0188		"	2.2000		91.8	70-136			
Tetrachloroethene (Tetrachloroethylene)	2.2239		"	2.2000		101	68-148			
trans-1,2-Dichloroethene	2.0445		"	2.2000		92.9	73-136			
Trichloroethene (Trichloroethylene)	2.3271		"	2.2000		106	69-137			
Vinyl chloride	1.7990		"	2.2000		81.8	62-151			
LCS Dup (1912018-BSD1)				Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.3597		ppbv	2.4000		98.3	70-140	4.52	25	
cis-1,2-Dichloroethene	2.0640		"	2.2000		93.8	70-136	2.21	25	
Tetrachloroethene (Tetrachloroethylene)	2.3338		"	2.2000		106	68-148	4.82	25	
trans-1,2-Dichloroethene	2.0968		"	2.2000		95.3	73-136	2.52	25	
Trichloroethene (Trichloroethylene)	2.3555		"	2.2000		107	69-137	1.22	25	
Vinyl chloride	1.9236		"	2.2000		87.4	62-151	6.69	25	
Duplicate (1912018-DUP1)		**Source: E194902-09**		Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.38812	0.22	ug/m3		0.35461			9.02	25	
cis-1,2-Dichloroethene	0.15751	0.21	"		0.14778			6.38	25	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	0.96770	0.35	"		0.99476			2.76	25	
trans-1,2-Dichloroethene	U	0.21	"		U				25	U
Trichloroethene (Trichloroethylene)	0.98578	0.28	"		0.95762			2.90	25	
Vinyl chloride	U	0.13	"		U				25	U

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912018 - V TO-15 Air Canister										
MRL Verification (1912018-PS1)				Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.23647		ppbv	0.24000		98.5	50-160			
cis-1,2-Dichloroethene	0.20926		"	0.22000		95.1	50-156			
Tetrachloroethene (Tetrachloroethylene)	0.25850		"	0.22000		118	50-150			
trans-1,2-Dichloroethene	0.21038		"	0.22000		95.6	53-156			
Trichloroethene (Trichloroethylene)	0.23946		"	0.22000		109	50-150			
Vinyl chloride	0.21610		"	0.22000		98.2	50-150			
MRL Verification (1912018-PS2)				Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.047480		ppbv	0.048000		98.9	50-160			
cis-1,2-Dichloroethene	0.044820		"	0.044000		102	50-156			
Tetrachloroethene (Tetrachloroethylene)	0.048930		"	0.044000		111	50-150			
trans-1,2-Dichloroethene	0.046440		"	0.044000		106	53-156			
Trichloroethene (Trichloroethylene)	0.047340		"	0.044000		108	50-150			
Vinyl chloride	0.044250		"	0.044000		101	50-150			
MRL Verification (1912018-PS3)				Prepared: 12/05/19 Analyzed: 12/10/19						
EPA TO-15										
1,1-Dichloroethene (1,1-Dichloroethylene)	0.023180		ppbv	0.024000		96.6	50-160			MRL-5
cis-1,2-Dichloroethene	0.024810		"	0.022000		113	50-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.024370		"	0.022000		111	50-150			MRL-5
trans-1,2-Dichloroethene	0.022980		"	0.022000		104	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.023900		"	0.022000		109	50-150			MRL-5
Vinyl chloride	0.023290		"	0.022000		106	50-150			MRL-5

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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-5	MRL verification for Air matrix
Q-2	Result greater than MDL but less than MRL.

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January 2, 2020

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 20-0055, Patterson Street Solvent Plume

FROM: Kristin Trapp
OCS Analyst

THRU: Jeffrey Hendel, Chief
LSB Organic Chemistry Section

TO: Cathy Amoroso

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA 8260C (Water)	ISO

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Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

cc: Nardina Turner

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SAMPLES INCLUDED IN THIS REPORT

Project: 20-0055, Patterson Street Solvent Plume

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
PSP-TB-04	E194902-01	Trip Blank - Water	12/3/19 10:00	12/5/19 11:10
PSP31-SW	E194902-16	Surface Water	12/3/19 09:20	12/5/19 11:10
PSP32-SW	E194902-17	Surface Water	12/3/19 09:07	12/5/19 11:10

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DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP-TB-04 **Lab ID:** E194902-01
Station ID: **Matrix:** Trip Blank - Water

Date Collected: 12/3/19 10:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 13:05	EPA 8260C

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP31-SW **Lab ID:** E194902-16
Station ID: PSP31 **Matrix:** Surface Water

Date Collected: 12/3/19 9:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 14:25	EPA 8260C

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Volatile Organics

Project: 20-0055, Patterson Street Solvent Plume

Sample ID: PSP32-SW **Lab ID:** E194902-17
Station ID: PSP32 **Matrix:** Surface Water

Date Collected: 12/3/19 9:07

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	12/09/19 9:42	12/09/19 16:11	EPA 8260C

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912017 - V 5030B VOA Wtr Prep										
Blank (1912017-BLK1)				Prepared & Analyzed: 12/09/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.50	ug/L							U
cis-1,2-Dichloroethene	U	0.50	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.50	"							U
trans-1,2-Dichloroethene	U	0.50	"							U
Trichloroethene (Trichloroethylene)	U	0.50	"							U
Vinyl chloride	U	0.50	"							U
LCS (1912017-BS1)				Prepared & Analyzed: 12/09/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	20.740		ug/L	20.000		104	85.4-116			
cis-1,2-Dichloroethene	21.650		"	20.000		108	87.6-115			
Tetrachloroethene (Tetrachloroethylene)	21.100		"	20.000		106	85.1-113			
trans-1,2-Dichloroethene	21.790		"	20.000		109	86.6-114			
Trichloroethene (Trichloroethylene)	21.320		"	20.000		107	87.8-114			
Vinyl chloride	21.830		"	20.000		109	78.8-115			
Matrix Spike (1912017-MS1)		**Source: E194902-16**		Prepared & Analyzed: 12/09/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	12.450		ug/L	10.233	0.0000	122	87.5-133			
cis-1,2-Dichloroethene	12.310		"	10.233	0.0000	120	85.3-127			
Tetrachloroethene (Tetrachloroethylene)	11.560		"	10.233	0.0000	113	66.4-149			
trans-1,2-Dichloroethene	12.250		"	10.233	0.0000	120	86.8-128			
Trichloroethene (Trichloroethylene)	11.670		"	10.233	0.0000	114	87.2-128			
Vinyl chloride	13.770		"	10.233	0.0000	135	84.5-135			
Matrix Spike Dup (1912017-MSD1)		**Source: E194902-16**		Prepared & Analyzed: 12/09/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	12.480		ug/L	10.233	0.0000	122	87.5-133	0.241	12.8	
cis-1,2-Dichloroethene	11.730		"	10.233	0.0000	115	85.3-127	4.83	10.8	
Tetrachloroethene (Tetrachloroethylene)	11.640		"	10.233	0.0000	114	66.4-149	0.690	13.4	
trans-1,2-Dichloroethene	12.340		"	10.233	0.0000	121	86.8-128	0.732	11	
Trichloroethene (Trichloroethylene)	11.660		"	10.233	0.0000	114	87.2-128	0.0857	15	
Vinyl chloride	14.050		"	10.233	0.0000	137	84.5-135	2.01	14.1	QM-2

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912017 - V 5030B VOA Wtr Prep										
MRL Verification (1912017-PS1)				Prepared & Analyzed: 12/09/19						
EPA 8260C										
1,1-Dichloroethene (1,1-Dichloroethylene)	2.2900		ug/L	2.0000		114	65.4-136			
cis-1,2-Dichloroethene	2.1900		"	2.0000		110	67.6-135			
Tetrachloroethene (Tetrachloroethylene)	2.3500		"	2.0000		118	65.1-133			
trans-1,2-Dichloroethene	2.2800		"	2.0000		114	66.6-134			
Trichloroethene (Trichloroethylene)	2.0500		"	2.0000		102	67.8-134			
Vinyl chloride	2.6600		"	2.0000		133	58.8-135			

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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
QM-2	Matrix Spike Recovery greater than method control limits